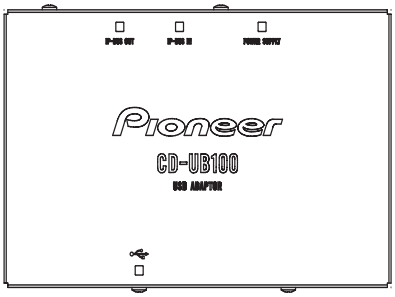
Pioneer *sound.vision.soul*

Service Manual



CD-UB100/XN/UC

ORDER NO.
CRT3844

USB ADAPTER

CD-UB100/XN/UC
CD-UB100/XN/E5

For details, refer to "Important Check Points for Good Servicing".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2006**

K-ZZA. DEC. 2006 Printed in Japan

SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

● Service Precaution

1. You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.
2. Be careful in handling ICs. Some ICs such as MOS type are so fragile that they can be damaged by electrostatic induction.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

SAFETY INFORMATION 2
1. SPECIFICATIONS 5
2. EXPLODED VIEWS AND PARTS LIST 6
2.1 PACKING 6
2.2 EXTERIOR 8
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM 10
3.1 BLOCK DIAGRAM 10
3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE) 12
4. PCB CONNECTION DIAGRAM 18
4.1 MOTHER UNIT 18
5. ELECTRICAL PARTS LIST 22
6. ADJUSTMENT 25
6.1 TEST MODE 25
7. GENERAL INFORMATION 26
7.1 DIAGNOSIS 26
7.1.1 DISASSEMBLY 26
7.1.2 CONNECTOR FUNCTION DESCRIPTION 27
7.2 IC 28
7.3 OPERATIONAL FLOW CHART 35
8. OPERATIONS 36

1. SPECIFICATIONS

General

Power source	14.4 V DC (10.8 V to 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	2.0 A
Dimensions (W × H × D)	146 × 24 × 90 mm (5-3/4 × 1 × 3-1/2 in.)
Weight	0.32 kg (0.7 lbs)
Backup current	2 mA or less

USB

Specification	USB 2.0 full speed
Supply current	500 mA
Maximum amount of memory	250 GB
File system	FAT12, FAT16, FAT32
Maximum number of files	15 000
Maximum number of folders	500
MP3 decoding format	MPEG-1, 2 & 2.5 Audio Layer 3
WMA decoding format	Ver. 7, 7.1, 8, 9, 10 (2ch audio) (Windows Media Player)
AAC decoding format	MPEG-4 AAC (iTunes® encoded only)

Audio

Signal-to-noise ratio	95 dB (1 kHz) (IHF-A network)
Dynamic range	95 dB (1 kHz)
Channel separation	90 dB (1 kHz)
Number of channels	2 (stereo)

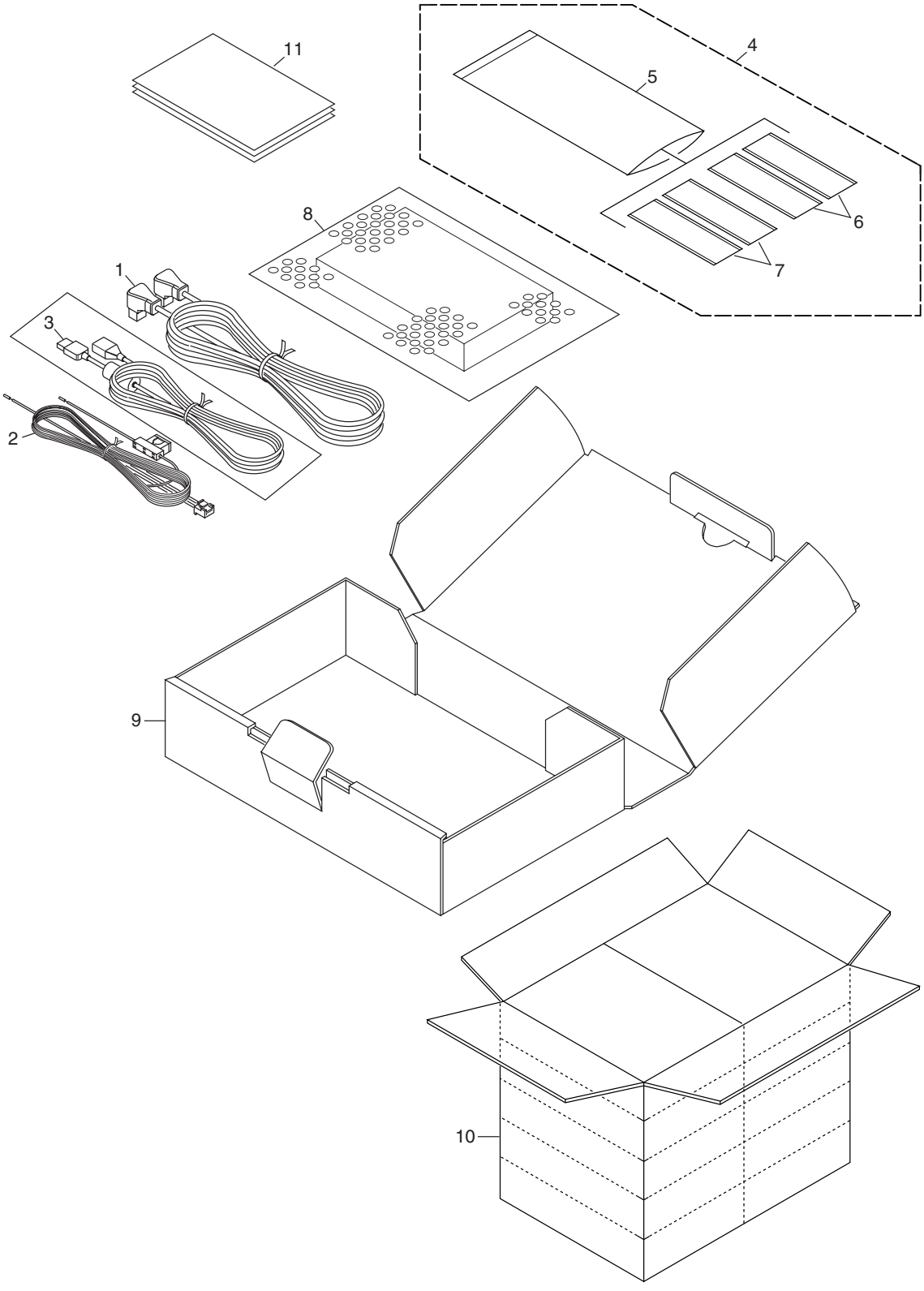
Note

Specifications and the design are subject to possible modifications without notice due to improvements. ■

2. EXPLODED VIEWS AND PARTS LIST

*NOTES : • Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*
• The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
• Screw adjacent to▽mark on the product are used for disassembly.
• For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions,apply as you think it appropriate.)

2.1 PACKING



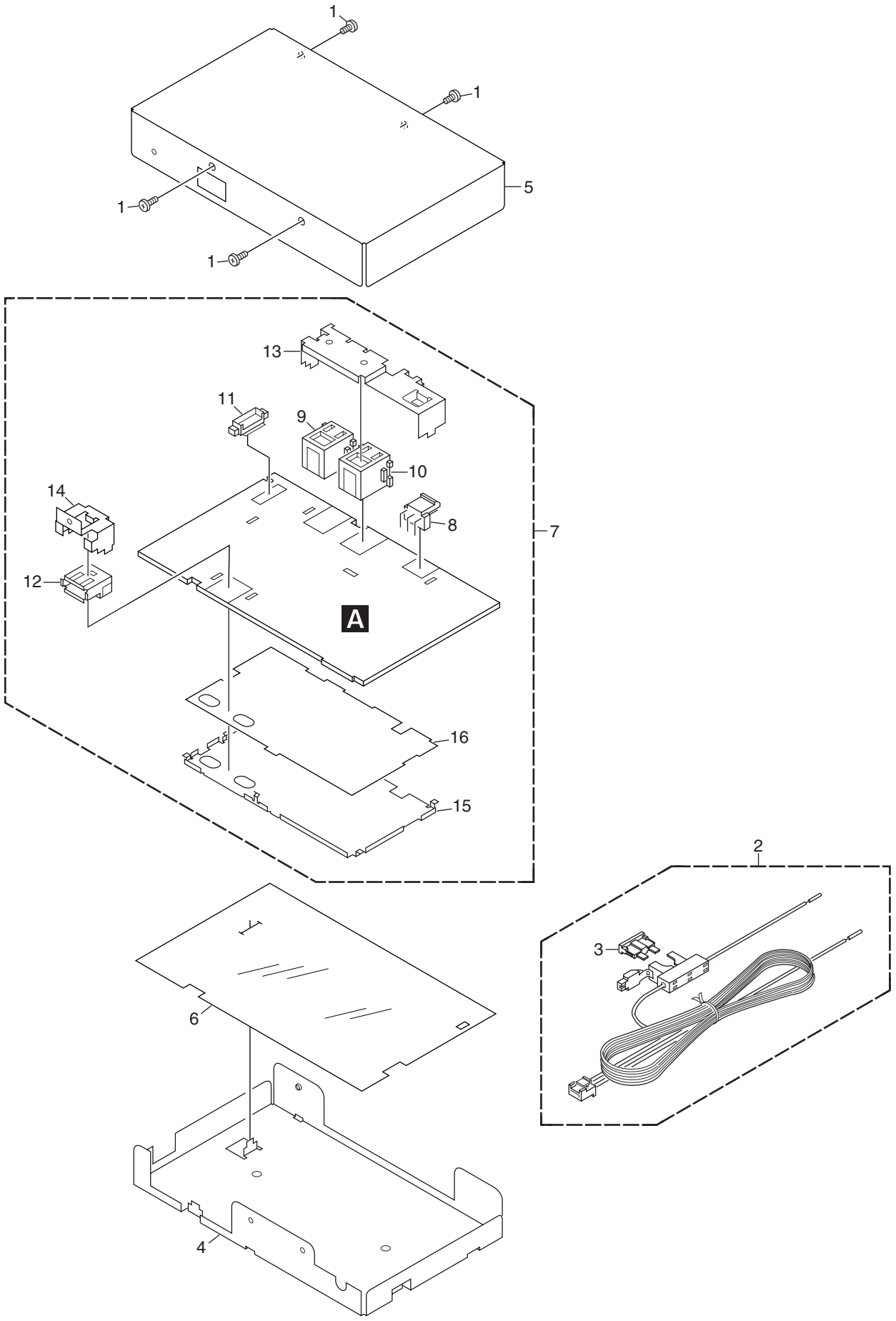
PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cord Assy	CDE5880
	2	Cord Assy	CDE8158
	3	Cord Assy	CDP1026
*	4	Accessory Assy	CEA7408
	5	Polyethylene Bag	CEG1160
	6	Fastener	CNM6888
	7	Fastener	CNM6889
	8	Air Cushioned Bag	CEG1007
	9	Carton(UC)	CHG6068
		Carton(E5)	CHG6067
	10	Contain Box(UC)	CHL6068
		Contain Box(E5)	CHL6067
	11-1	Owner's Manual(UC)	CRD4151
		Owner's Manual(E5)	CRD4149
	11-2	Owner's Manual(E5)	CRD4150
*	11-3	Warranty Card(UC)	CRY1246
*		Warranty Card(E5)	CRY1157

Owner's Manual

Part No.	Language
CRD4151	English, French, Spanish
CRD4149	English, Spanish, German, French, Italian
CRD4150	Dutch, Russian, Portuguese(B), Traditional Chinese, Arabic

2.2 EXTERIOR

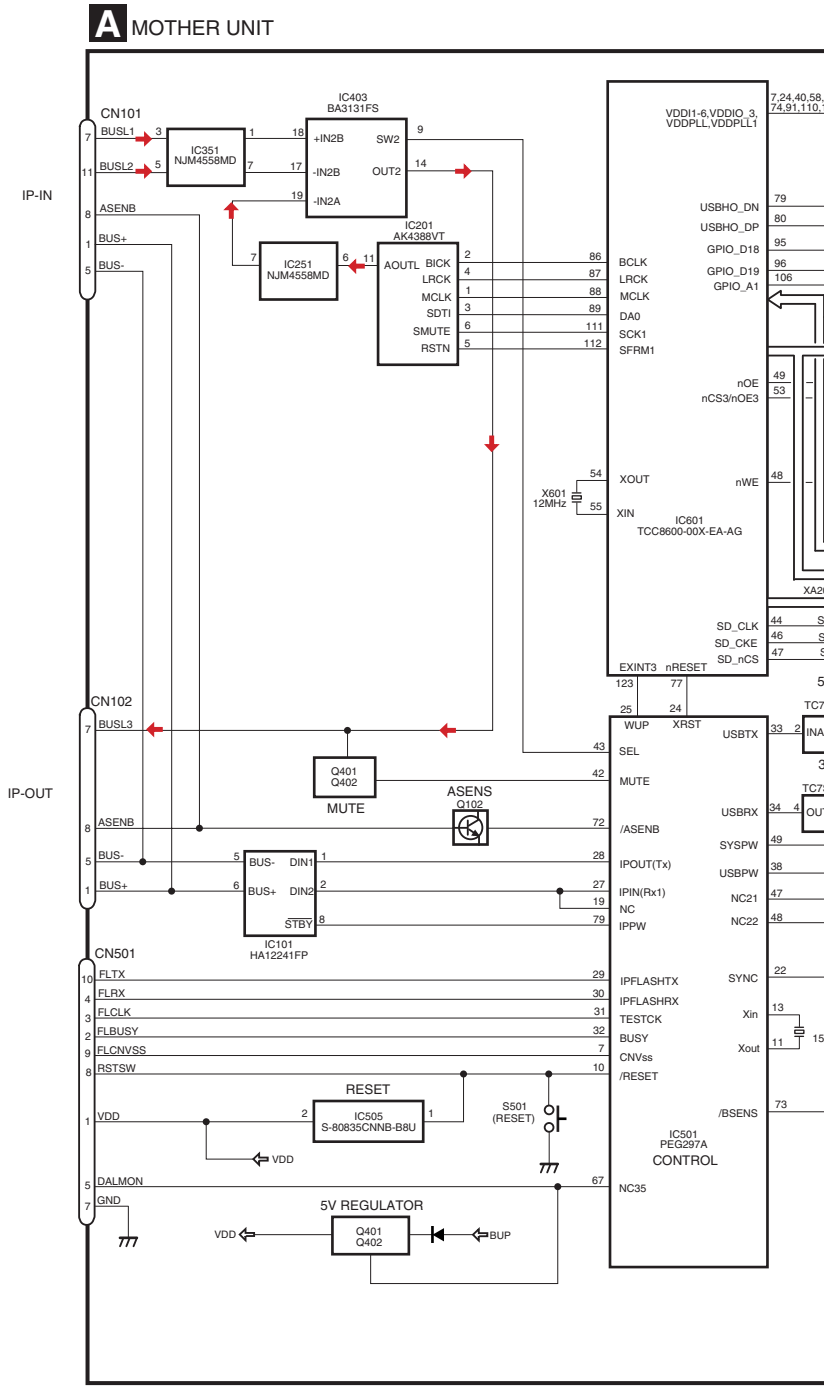


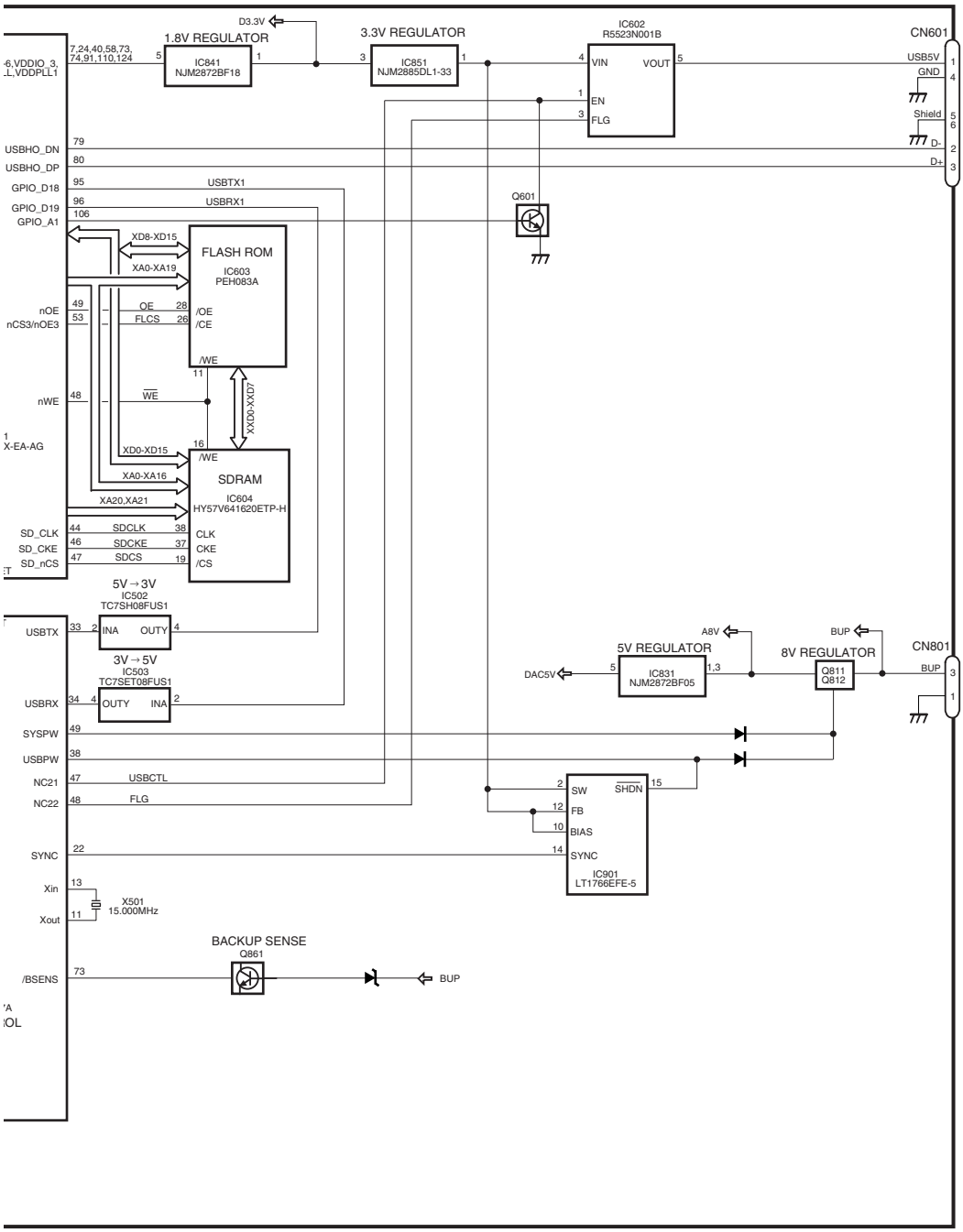
EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BSZ26P050FTB
	2	Cord Assy	CDE8158
⚠	3	Fuse(3 A)	CEK1134
	4	Chassis	CNA2909
	5	Case	CNB3369
	6	Insulator	CNN1104
	7	Mother Unit	CWN2102
	8	Plug(CN801)	CKS-460
	9	Connector(CN102)	CKS3409
	10	Connector(CN101)	CKS3414
	11	Connector(CN501)	CKS4830
	12	Connector(CN601)	CKS5669
	13	Holder	CND3443
	14	Holder	CND3780
	15	Shield	CND4090
	16	Insulator	CNM1710

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

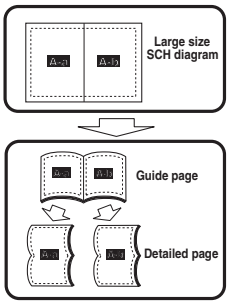
3.1 BLOCK DIAGRAM



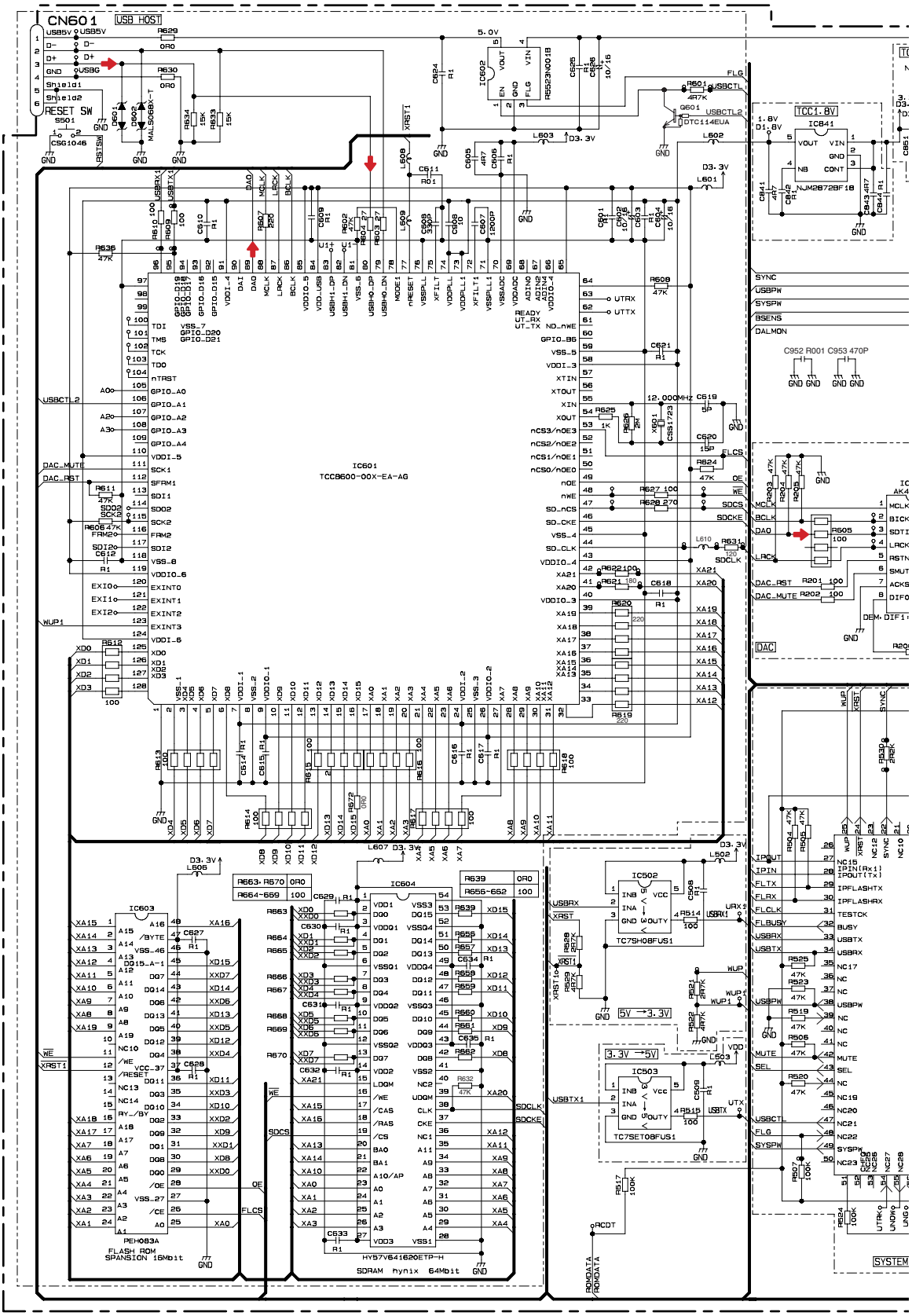

D3.3V
1.8V REGULATOR
IC841
NJM2872BF18
3.3V REGULATOR
IC851
NJM2885DL1-33
IC602
R5523N001B
VIN
VOUT
EN
FLG
CN601
USB5V
GND
Shield
D-
D+
USBHO_DN
USBHO_DP
GPIO_D18
GPIO_D19
GPIO_A1
USBTX1
USBRX1
Q601
FLASH ROM
IC603
PEH083A
XD8-XD15
XA0-XA19
/OE
/CE
/WE
XXD0-XXD7
SDRAM
IC604
HY57V641620ETP-H
XD0-XD15
XA0-XA16
XA20,XA21
SDCLK
SDCKE
SDCS
CLK
CKE
/CS
nOE
nCS3/nOE3
nWE
SD_CLK
SD_CKE
SD_nCS
5V→3V
IC502
TC7SH08FUS1
3V→5V
IC503
TC7SET08FUS1
USBTX
USBRX
SYSPW
USBPW
NC21
NC22
USBCTL
FLG
SYNC
Xin
Xout
X501
15.000MHz
BACKUP SENSE
Q861
/BSENS
BUP
5V REGULATOR
IC831
NJM2872BF05
DAC5V
A8V
8V REGULATOR
Q811
Q812
CN801
SW
SHDN
FB
BIAS
SYNC
IC901
LT1766EFE-5

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

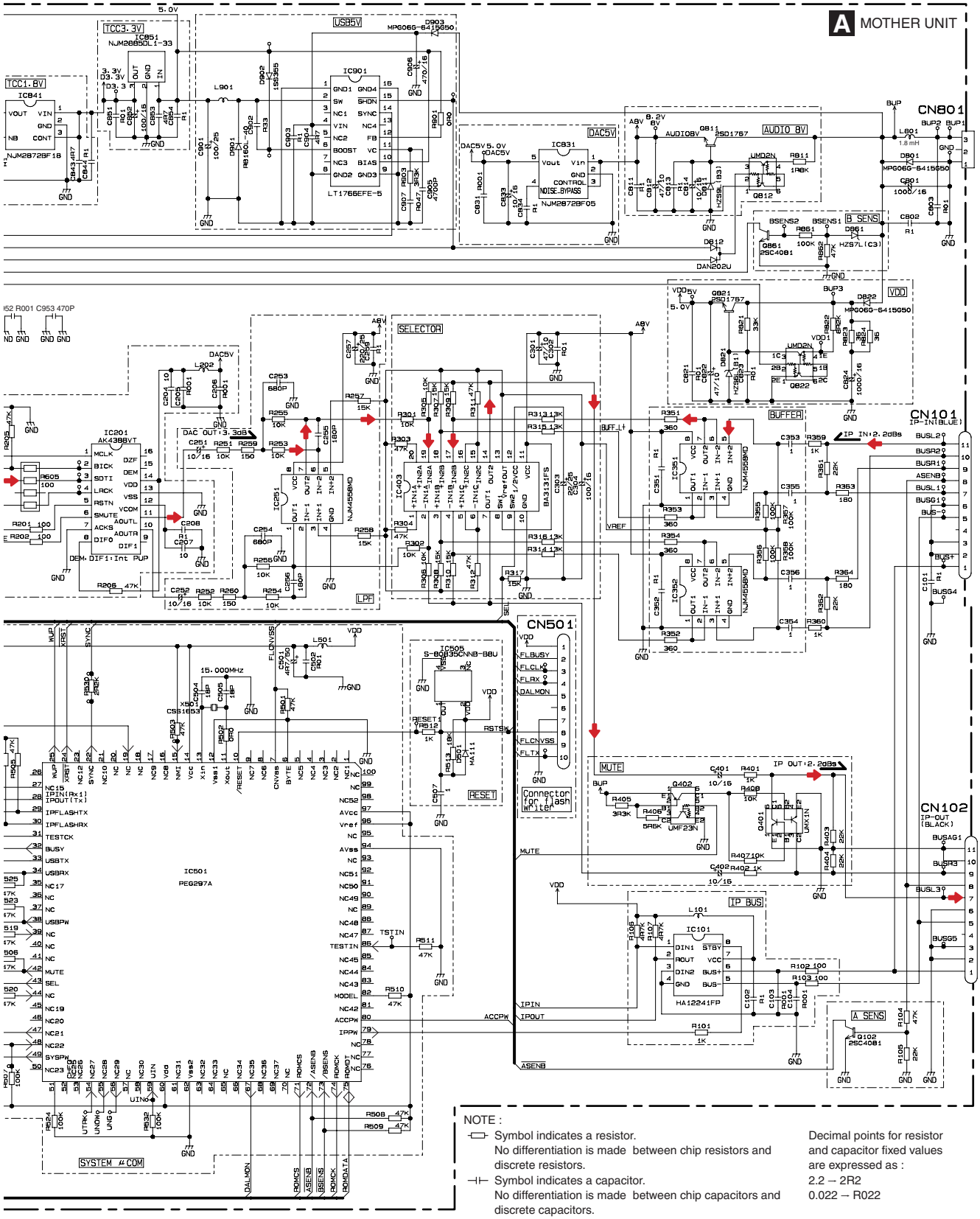


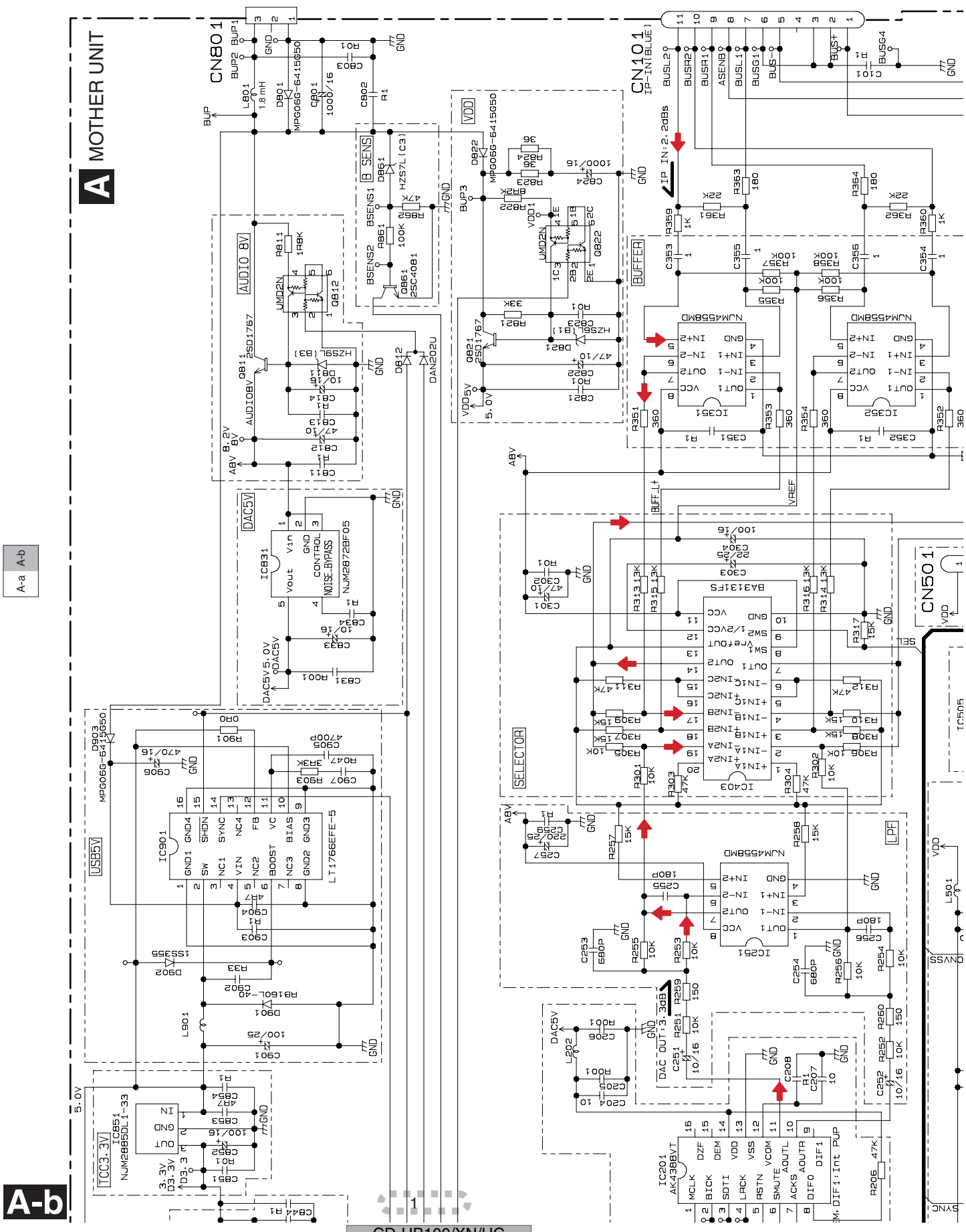
A-a



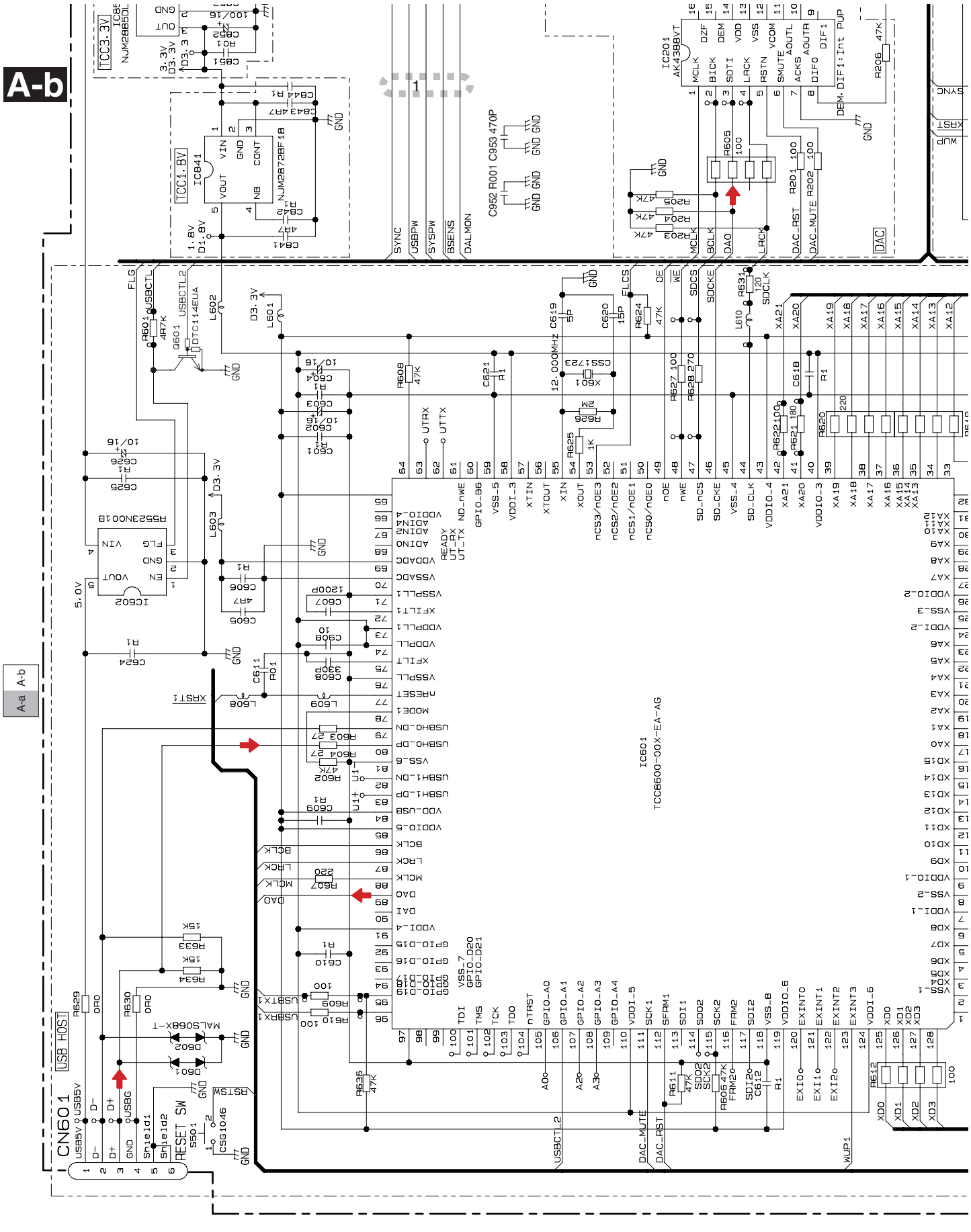
A

A-b


A MOTHER UNIT
CN801
CN101
IP-IN(BLUE)
CN102
IP-OUT
(BLACK)
CN501
IC501
PEG297A
SYSTEM & COM
SELECTOR
BUFFER
MUTE
IP BUS
A SENS
B SENS
VDD
AUDIO 8V
DAC5V
TCC3.3V
TCC1.8V
USB5V
LPF
RESET
Connector for flash writer
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as :
2.2 → 2R2
0.022 → R022


A MOTHER UNIT
CN801
CN101
IP-IN(BLUE)
CN501
AUDIO 8V
B SENS
VDD
BUFFER
DAC5V
USB5V
TCC3.3V
SELECTOR
LPF
IC901
LT1766EFE-5
IC403
BA3131FS
IC201
AK4388VT
IC851
NJM2885DL1-33
IC831
NJM2872BF05
NJM4558MD
A-b
CD-UB100/XN/UC
14

CN102
IP-OUT (BLACK)
CN501
Connector for flash writer
IC501
PEG297A
IC505
S-80835CNNB-B8U
IC352
NJM4558MD
IC101
HA12241FP
Q102
2SC4081
Q401
UMX1N
Q402
UMF23N
L501
L101
X501
CSS1E53
15.000MHz
A SENS
IP BUS
MUTE
RESET
LPF
SYSTEM & COM
IP OUT:2.2dBs
BUP
VDD
GND
SEL
SYNC
ITX
IRX
IPIN
IPOUT
ASENB
ACCPW
TESTIN
ROMDATA
ROMCK
BSENS
ASENB
ROMCS
DALMON
UIN
UNOW
UTRK
FLCNVSS
RESET1
Decimal points for resistor and capacitor fixed values are expressed as :
2.2 → 2R2
0.022 → R022
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
A-a
A-b
A-b


A-b
A-a
IC601
TCC8600-00X-EA-AG
CN601
USB HOST
RESET SW
IC602
IC841
IC201
AK4388VT
TCC3.3V
TCC1.8V
DAC
SYNC
USBPW
SYSPW
BSENS
DALMON
USBCTL
USBCTL2
FLG
WE
OE
SDCS
SDCKE
SDCLK
MCLK
BCLK
DAO
LRCK
DAC_RST
DAC_MUTE
WUP1
USBCT_2
SDO2
SCK2
FRM2
SDI2
XRST1
XRST
SYNC
WUP
GND
D3.3V
D1.8V
5.0V
USB5V
D-
D+
USBG
Shield1
Shield2
BSTSW
SDI1
SFRM1
SCK1
VDDI_5
VDDIO_6
VSS_8
VDDIO_5
VDDI_4
VDDIO_4
VSS_7
VSS_6
VDDIO_3
VDDIO_2
VSS_3
VDDI_3
VDDIO_1
VSS_2
VDDI_2
VDDIO_-1
VSS_1
VDDI_1

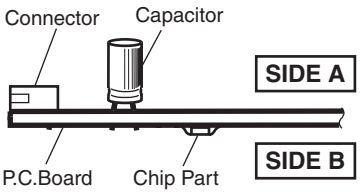
A-b
SYSTEM μCOM
DAC
IC502
TC7SH08FUS1
IC503
TC7SET08FUS1
5V →3.3V
3.3V →5V
IC604
HY57V641620ETP-H
SDRAM hynix 64Mbit
IC603
PEH083A
FLASH ROM
SPANSION 16Mbit
A-a
A-b
CD-UB100/XN/UC

4. PCB CONNECTION DIAGRAM
4.1 MOTHER UNIT

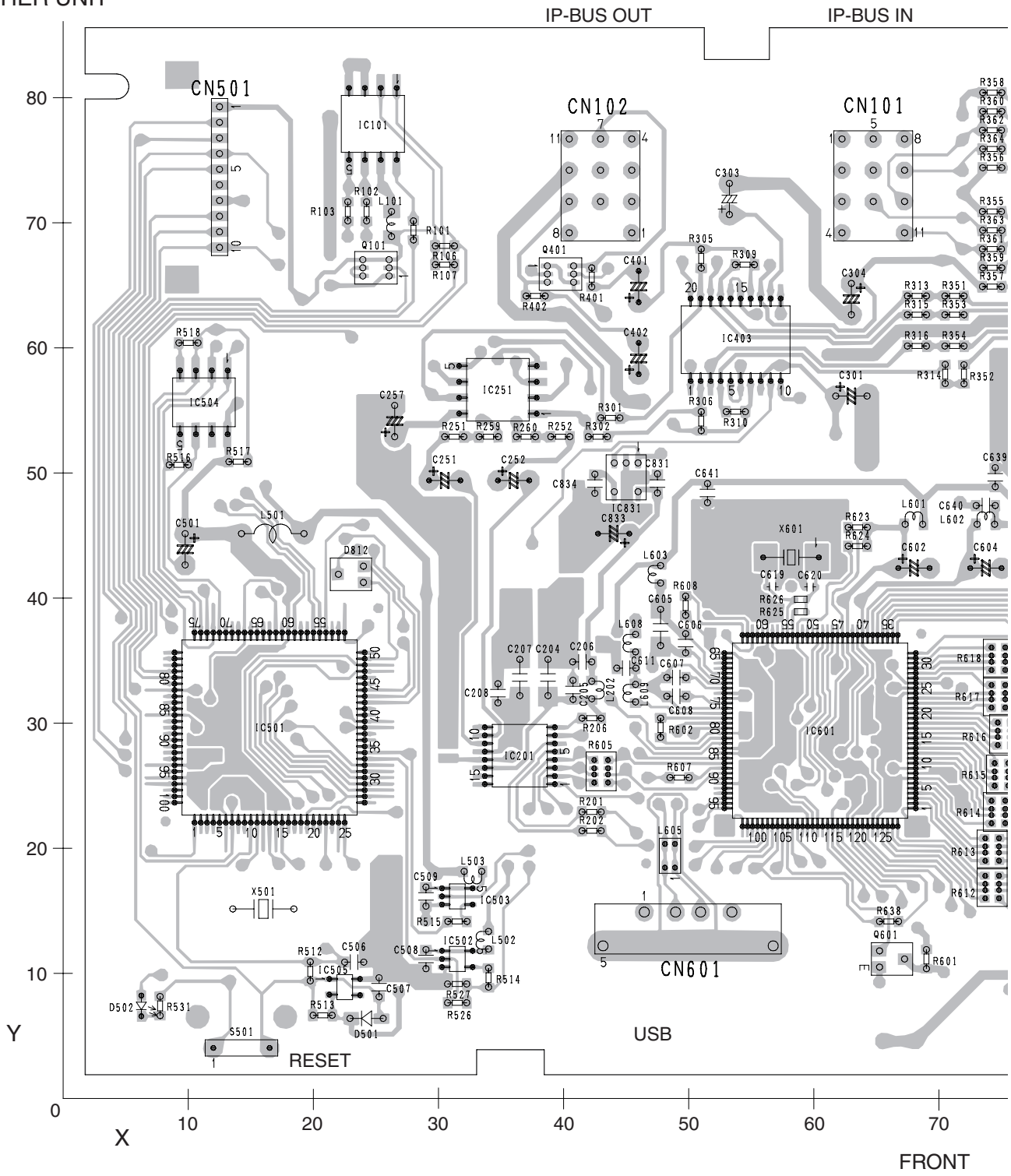
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination. For further information for respective destinations, be sure to check with the schematic diagram.

2. Viewpoint of PCB diagrams



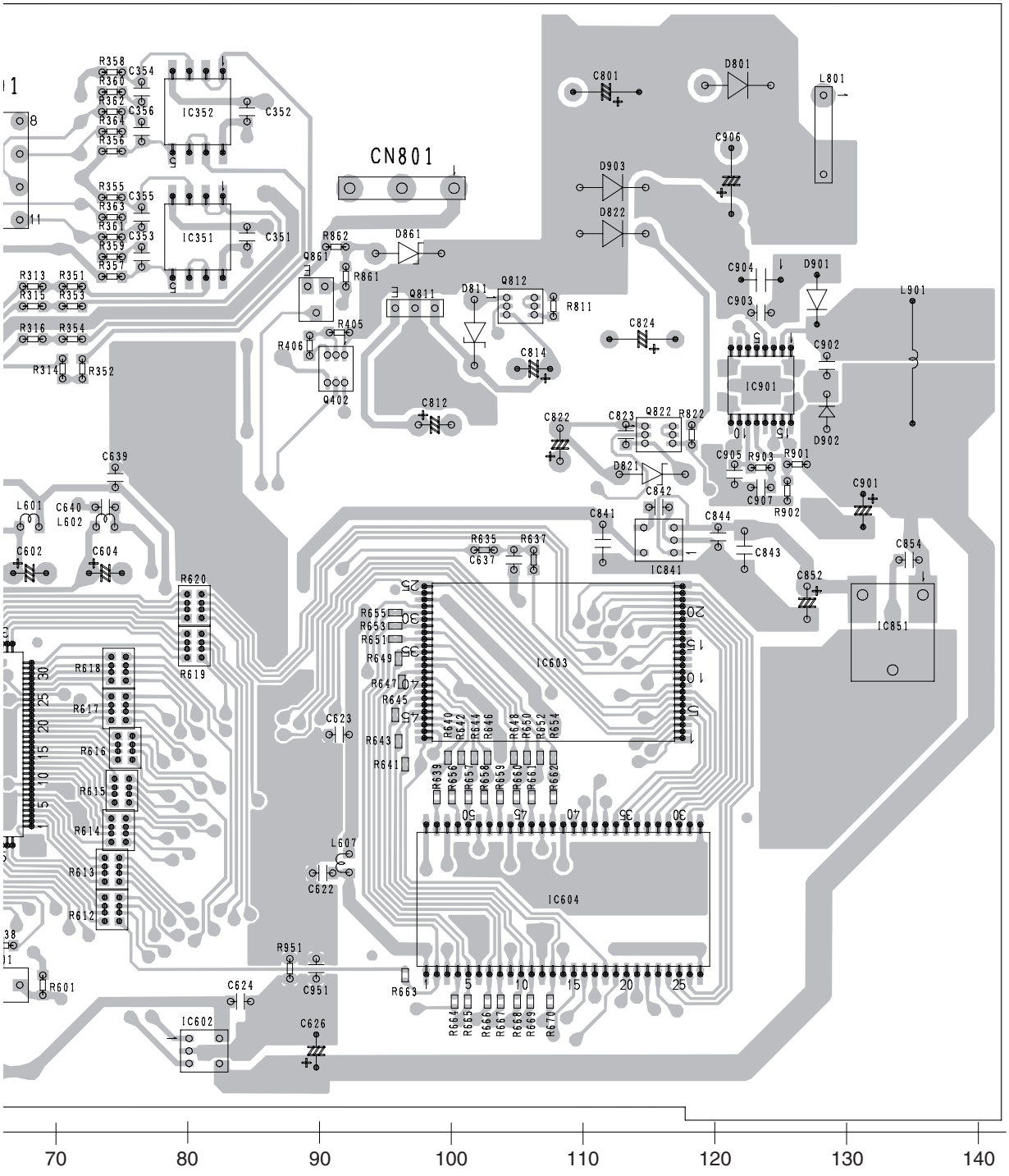
A MOTHER UNIT



A

SIDE A

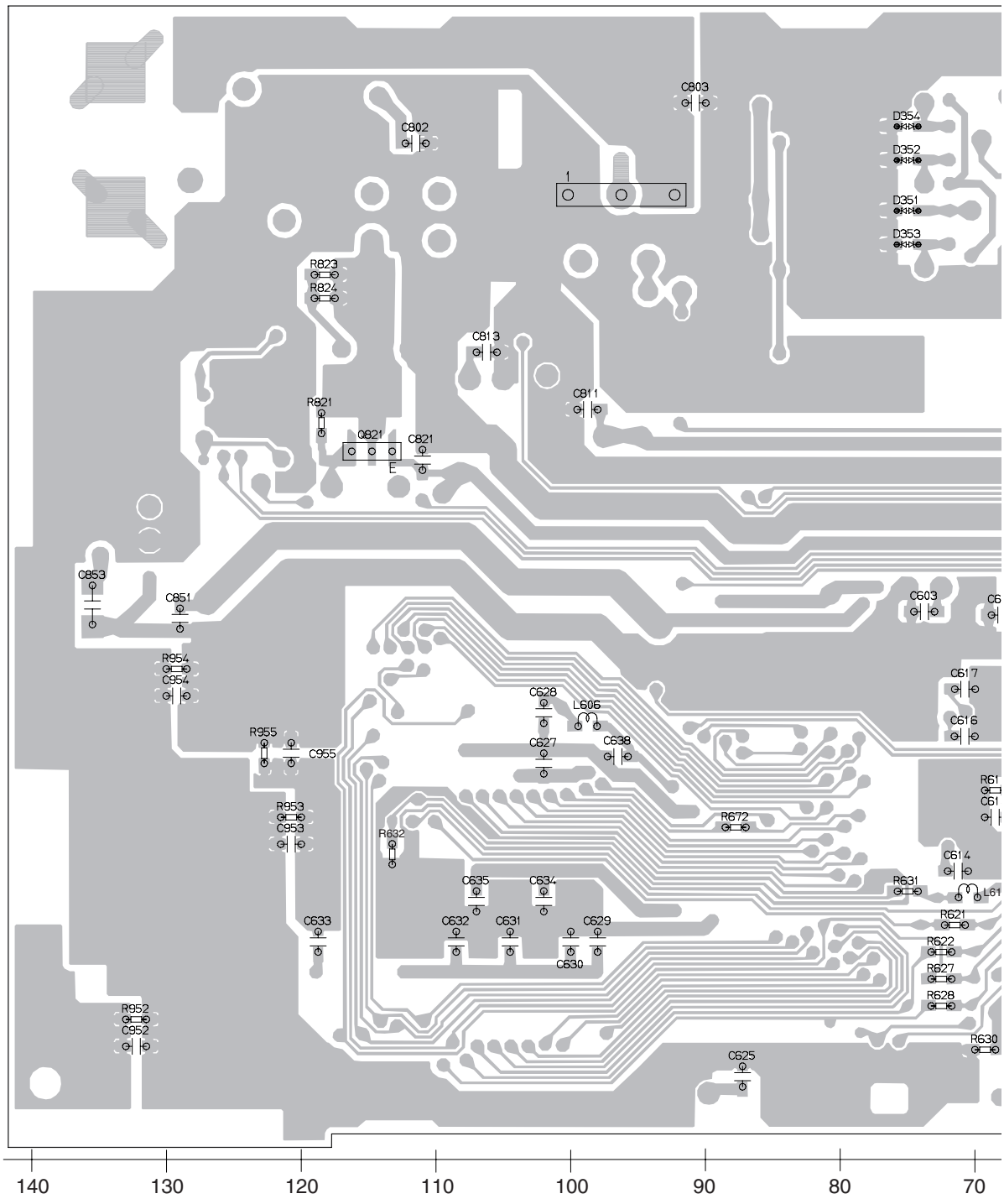
IN POWER SUPPLY



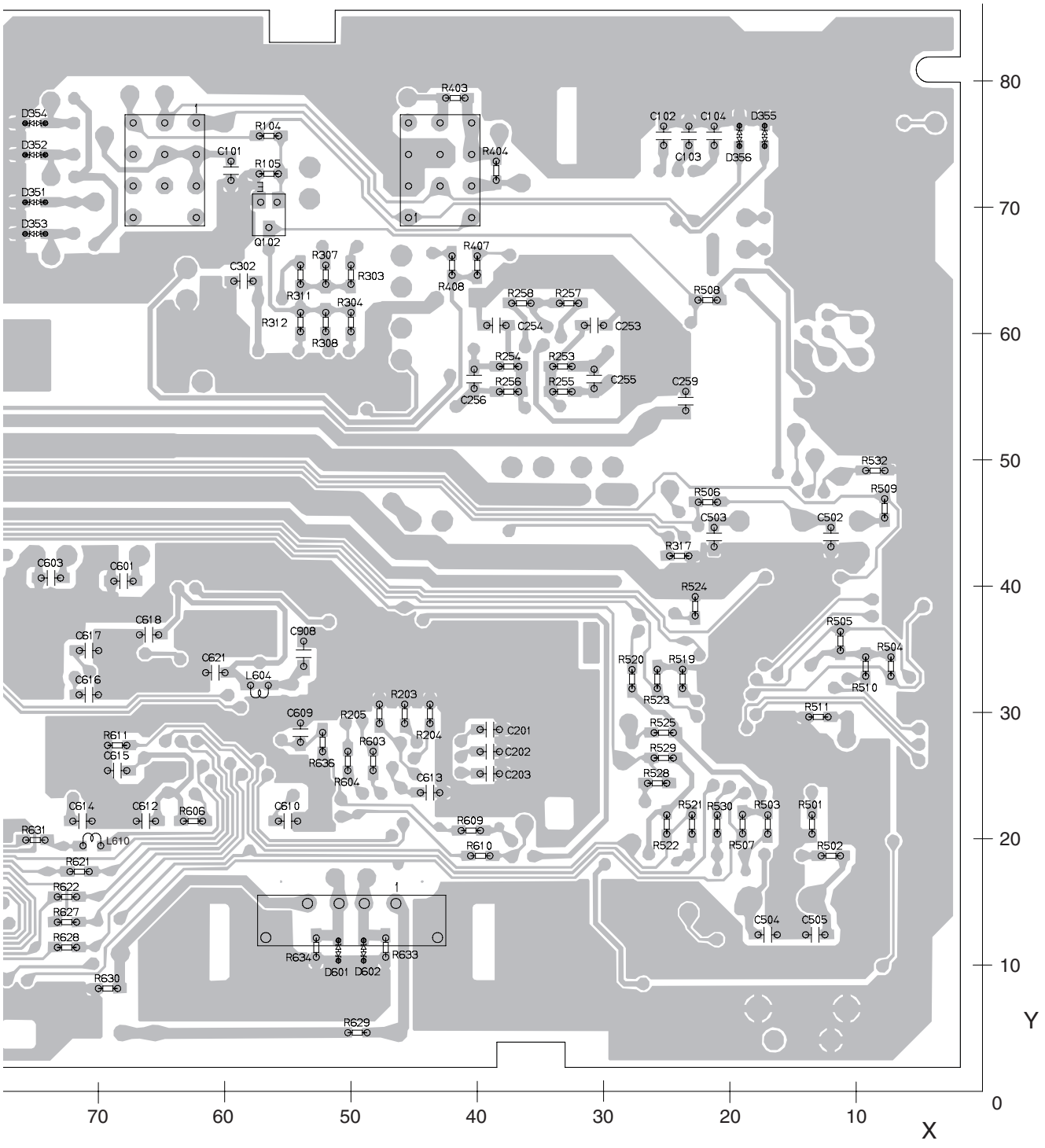
FRONT

A

A MOTHER UNIT



SIDE B


D354
D352
D351
D353
C101
R104
R105
Q102
R403
R404
C102
C104
C103
D355
D356
C302
R307
R303
R311
R304
R312
R308
R407
R408
R258
R257
C254
C253
R508
R254
R253
R256
R255
C255
C256
C259
R532
R509
R506
C503
C502
R317
C603
C601
R524
C618
C617
C908
C621
L604
C616
R505
R504
R520
R519
R523
R510
R511
R203
C609
R205
R204
C201
C202
C203
R611
C615
R603
R636
R604
C613
R525
R529
R528
C614
C612
R606
C610
R609
R610
R631
L610
R621
R622
R627
R628
R630
R634
R633
D601
D602
R629
R521
R530
R503
R501
R522
R507
R502
C504
C505
80
70
60
50
40
30
20
10
0
Y
70
60
50
40
30
20
10
X

A

5. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

  Chip Resistor

  RS1/◯S◯◯◯J,RS1/◯◯S◯◯◯J

  Chip Capacitor (except for CQS.....)

  CKS....., CCS....., CSZS.....
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Meaning of the figures and others in the parentheses in the parts list.*

  Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

  IC 301 (A, 91, 111) IC NJM2068V

A

Unit Number : CWN2102

Unit Name : Mother Unit

MISCELLANEOUS

Circuit Symbol and No.		Part No.
IC 101	(A,25,78) IC	HA12241FP
IC 201	(A,37,27) IC	AK4388VT
IC 251	(A,35,57) IC	NJM4558MD
IC 351	(A,81,68) IC	NJM4558MD
IC 352	(A,81,77) IC	NJM4558MD
IC 403	(A,54,61) IC	BA3131FS
IC 501	(A,17,30) IC	PEG297A
IC 502	(A,32,11) IC	TC7SH08FUS1
IC 503	(A,32,16) L-MOS	TC7SET08FUS1
IC 505	(A,23,9) IC	S-80835CNNB-B8U
IC 601	(A,61,29) USB Media Control IC	TCC8600-00X-EA-AG
IC 602	(A,81,6) IC	R5523N001B
IC 603	(A,108,36) IC	PEH083A
IC 604	(A,109,18) SD-RAM(64M)	HY57V641620ETP-H
IC 831	(A,45,50) IC	NJM2872BF05
IC 841	(A,116,45) IC	NJM2872BF18
IC 851	(A,134,36) IC	NJM2885DL1-33
IC 901	(A,124,57) IC	LT1766EFE-5
Q 102	(B,57,69) Transistor	2SC4081
Q 401	(A,40,66) Transistor	UMX1N
Q 402	(A,91,58) Transistor	UMF23N
Q 601	(A,66,11) Chip Transistor	DTC114EWA
Q 811	(A,97,61) Transistor	2SD1767
Q 812	(A,105,63) Transistor	UMD2N
Q 821	(B,115,54) Transistor	2SD1767
Q 822	(A,116,53) Transistor	UMD2N
Q 861	(A,90,63) Transistor	2SC4081
D 501	(A,24,6) Diode	MA111
D 601	(B,51,11) Diode	MALS068X
D 602	(B,49,11) Diode	MALS068X
D 801	(A,122,79) Diode	MPG06G-6415G50
D 811	(A,102,61) Diode	HZS9L(B3)
D 812	(A,23,42) Diode	DAN202U
D 821	(A,115,50) Diode	HZS6L(B1)
D 822	(A,112,68) Diode	MPG06G-6415G50
D 861	(A,97,67) Diode	HZS7L(C3)
D 901	(A,128,63) Diode	RB160L-40
D 902	(A,129,55) Diode	1SS355
D 903	(A,112,72) Diode	MPG06G-6415G50
L 101	(A,26,70) Inductor	LCTC3R3K2125
L 202	(A,42,33) Inductor	CTF1379
L 501	(A,17,45) Ferri-Inductor	LAU100K
L 502	(A,34,13) Inductor	CTF1379
L 503	(A,33,18) Inductor	CTF1379
L 601	(A,68,46) Inductor	CTF1379
L 602	(A,74,46) Inductor	CTF1379
L 603	(A,48,42) Inductor	CTF1379
L 606	(B,99,32) Inductor	CTF1379
L 607	(A,92,20) Inductor	CTF1379
L 608	(A,46,36) Inductor	LCTC2R2K1608
L 609	(A,46,32) Inductor	LCTC2R2K1608
L 610	(B,71,19) Inductor	CTF1384
L 801	(A,134,76) Choke Coil 1.8 mH	CTH1367
L 901	(A,135,58) Inductor	CTH1255
X 501	(A,16,15) Crystal Resonator 15.000 MHz	CSS1653
X 601	(A,58,43) Crystal Resonator 12.000 MHz	CSS1723
S 501	(A,14,4) Switch(RESET)	CSG1046

RESISTORS

R 101	(A,28,69)	RS1/16S102J
R 102	(A,24,71)	RS1/16S101J
R 103	(A,23,71)	RS1/16S101J
R 104	(B,57,76)	RS1/16S473J
R 105	(B,57,73)	RS1/16S223J
R 106	(A,31,68)	RS1/16S472J
R 107	(A,31,67)	RS1/16S472J
R 201	(A,42,23)	RS1/16S101J
R 202	(A,42,21)	RS1/16S101J
R 203	(B,46,30)	RS1/16S473J
R 204	(B,44,30)	RS1/16S473J
R 205	(B,48,30)	RS1/16S473J
R 206	(A,42,30)	RS1/16S473J
R 251	(A,31,53)	RS1/16S103J
R 252	(A,40,53)	RS1/16S103J

Circuit Symbol and No.		Part No.
R 253	(B,33,57)	RS1/16S103J
R 254	(B,38,57)	RS1/16S103J
R 255	(B,33,55)	RS1/16S103J
R 256	(B,38,55)	RS1/16S103J
R 257	(B,33,62)	RS1/16S153J
R 258	(B,37,62)	RS1/16S153J
R 259	(A,34,53)	RS1/16S151J
R 260	(A,37,53)	RS1/16S151J
R 301	(A,44,54)	RS1/16S103J
R 302	(A,43,53)	RS1/16S103J
R 303	(B,50,65)	RS1/16S473J
R 304	(B,50,61)	RS1/16S473J
R 305	(A,51,67)	RS1/16S103J
R 306	(A,51,54)	RS1/16S103J
R 307	(B,52,65)	RS1/16S153J
R 308	(B,52,61)	RS1/16S153J
R 309	(A,55,67)	RS1/16S153J
R 310	(A,54,55)	RS1/16S153J
R 311	(B,54,65)	RS1/16S473J
R 312	(B,54,61)	RS1/16S473J
R 313	(A,68,64)	RS1/16S133J
R 314	(A,71,58)	RS1/16S133J
R 315	(A,68,63)	RS1/16S133J
R 316	(A,68,60)	RS1/16S133J
R 317	(B,24,42)	RS1/16S153J
R 351	(A,71,64)	RS1/16S361J
R 352	(A,72,58)	RS1/16S361J
R 353	(A,71,63)	RS1/16S361J
R 354	(A,71,60)	RS1/16S361J
R 355	(A,74,71)	RS1/16S104J
R 356	(A,74,74)	RS1/16S104J
R 357	(A,74,65)	RS1/16S104J
R 358	(A,74,80)	RS1/16S104J
R 359	(A,74,66)	RS1/16S102J
R 360	(A,74,79)	RS1/16S102J
R 361	(A,74,68)	RS1/16S223J
R 362	(A,74,77)	RS1/16S223J
R 363	(A,74,69)	RS1/16S181J
R 364	(A,74,76)	RS1/16S181J
R 401	(A,42,66)	RS1/16S102J
R 402	(A,38,64)	RS1/16S102J
R 403	(B,42,79)	RS1/16S223J
R 404	(B,39,73)	RS1/16S223J
R 405	(A,92,61)	RS1/16S332J
R 406	(A,89,60)	RS1/16S562J
R 407	(B,40,65)	RS1/16S103J
R 408	(B,42,65)	RS1/16S103J
R 501	(B,14,21)	RS1/16S473J
R 502	(B,12,19)	RS1/16S0R0J
R 503	(B,17,21)	RS1/16S473J
R 504	(B,7,34)	RS1/16S473J
R 505	(B,11,36)	RS1/16S473J
R 506	(B,22,47)	RS1/16S473J
R 507	(B,19,21)	RS1/16S104J
R 508	(B,22,63)	RS1/16S473J
R 509	(B,8,46)	RS1/16S473J
R 510	(B,9,34)	RS1/16S473J
R 511	(B,13,30)	RS1/16S473J
R 512	(A,20,10)	RS1/16S102J
R 513	(A,21,7)	RS1/16S183J

Circuit Symbol and No.		Part No.
R 514	(A,34,10)	RS1/16S101J
R 515	(A,32,14)	RS1/16S101J
R 517	(A,14,51)	RS1/16S104J
R 519	(B,24,33)	RS1/16S473J
R 520	(B,28,33)	RS1/16S473J
R 521	(B,23,21)	RS1/16S272J
R 522	(B,25,21)	RS1/16S472J
R 523	(B,26,33)	RS1/16S473J
R 524	(B,23,38)	RS1/16S104J
R 525	(B,25,28)	RS1/16S473J
R 528	(B,26,24)	RS1/16S272J
R 529	(B,25,26)	RS1/16S472J
R 530	(B,21,21)	RS1/16S222J
R 532	(B,9,49)	RS1/16S104J
R 601	(A,69,11)	RS1/16S472J
R 602	(A,48,30)	RS1/16S473J
R 603	(B,48,26)	RS1/16S270J
R 604	(B,50,26)	RS1/16S270J
R 605	(A,43,26)	RAB4CQ101J
R 606	(B,63,21)	RS1/16S473J
R 607	(A,49,26)	RS1/16S221J
R 608	(A,50,39)	RS1/16S473J
R 609	(B,41,21)	RS1/16S101J
R 610	(B,40,19)	RS1/16S101J
R 611	(B,69,27)	RS1/16S473J
R 612	(A,74,17)	RAB4CQ101J
R 613	(A,74,20)	RAB4CQ101J
R 614	(A,75,23)	RAB4CQ101J
R 615	(A,75,26)	RAB4CQ101J
R 616	(A,75,29)	RAB4CQ101J
R 617	(A,75,32)	RAB4CQ101J
R 618	(A,75,35)	RAB4CQ101J
R 619	(A,81,37)	RAB4CQ221J
R 620	(A,81,40)	RAB4CQ221J
R 621	(B,72,17)	RS1/16S181J
R 622	(B,73,15)	RS1/16S101J
R 624	(A,64,44)	RS1/16S473J
R 625	(A,59,39)	RS1/16SS102J
R 626	(A,59,40)	RS1/16SS205J
R 627	(B,73,13)	RS1/16S101J
R 628	(B,73,11)	RS1/16S271J
R 629	(B,50,5)	RS1/16S0R0J
R 630	(B,69,8)	RS1/16S0R0J
R 631	(B,75,20)	RS1/16S121J
R 632	(B,113,23)	RS1/16S473J
R 633	(B,47,11)	RS1/16S153J
R 634	(B,53,11)	RS1/16S153J
R 636	(B,52,28)	RS1/16S473J
R 639	(A,99,25)	RS1/16SS0R0J
R 656	(A,100,25)	RS1/16SS101J
R 657	(A,101,25)	RS1/16SS101J
R 658	(A,103,25)	RS1/16SS101J
R 659	(A,104,25)	RS1/16SS101J
R 660	(A,105,25)	RS1/16SS101J
R 661	(A,106,25)	RS1/16SS101J
R 662	(A,108,25)	RS1/16SS101J
R 663	(A,97,12)	RS1/16SS0R0J
R 664	(A,100,10)	RS1/16SS101J
R 665	(A,101,10)	RS1/16SS101J
R 666	(A,103,10)	RS1/16SS101J
R 667	(A,104,10)	RS1/16SS101J

Circuit Symbol and No.		Part No.
R 668	(A,105,10)	RS1/16SS101J
R 669	(A,106,10)	RS1/16SS101J
R 670	(A,108,10)	RS1/16SS0R0J
R 672	(B,88,25)	RS1/16S0R0J
R 811	(A,108,63)	RS1/16S182J
R 821	(B,119,55)	RS1/16S333J
R 822	(A,118,53)	RS1/16S822J
R 823	(B,118,66)	RS1/16S360J
R 824	(B,118,64)	RS1/16S360J
R 861	(A,92,65)	RS1/16S104J
R 862	(A,91,67)	RS1/16S473J
R 901	(A,126,51)	RS1/16S0R0J
R 903	(A,124,50)	RS1/16S332J

CAPACITORS

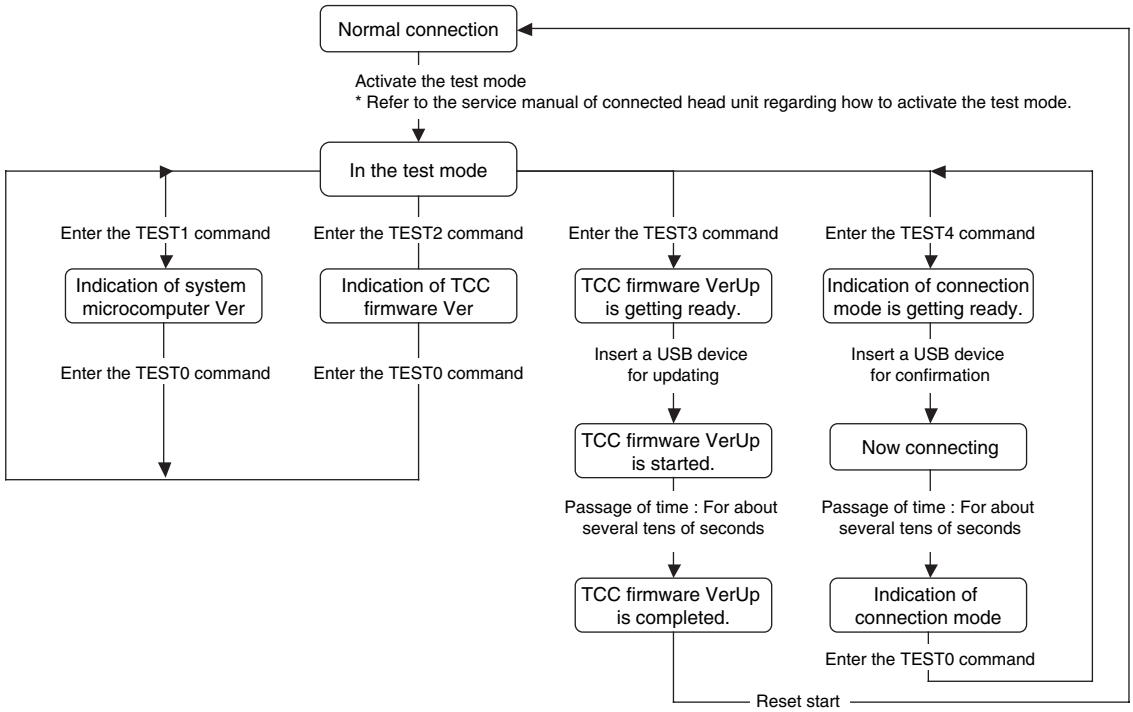
C 101	(B,60,73)	CKSRYB104K16
C 102	(B,25,76)	CKSRYB104K16
C 103	(B,23,76)	CKSRYB102K50
C 104	(B,21,76)	CKSRYB102K50
C 204	(A,39,34)	CKSYB106K6R3
C 205	(A,41,33)	CKSRYB102K50
C 206	(A,42,35)	CKSRYB102K50
C 207	(A,37,34)	CKSYB106K6R3
C 208	(A,35,32)	CKSRYB104K16
C 251	(A,31,49)	CEJQ100M16
C 252	(A,36,49)	CEJQ100M16
C 253	(B,31,61)	CCSRCH681J50
C 254	(B,39,61)	CCSRCH681J50
C 255	(B,31,56)	CCSRCH181J50
C 256	(B,40,56)	CCSRCH181J50
C 257	(A,27,54)	CEAT220M25
C 259	(B,24,55)	CKSRYB104K16
C 301	(A,63,56)	CEAT470M10
C 302	(B,59,64)	CKSRYB103K50
C 303	(A,53,72)	CEAT220M25
C 304	(A,63,64)	CEAT101M16
C 351	(A,85,68)	CKSRYB104K16
C 352	(A,85,77)	CKSRYB104K16
C 353	(A,77,66)	CKSRYB105K10
C 354	(A,77,79)	CKSRYB105K10
C 355	(A,77,69)	CKSRYB105K10
C 356	(A,77,76)	CKSRYB105K10
C 401	(A,46,65)	CEJQ100M16
C 402	(A,46,59)	CEJQ100M16
C 501	(A,10,44)	CEAT4R7M50
C 502	(B,12,44)	CKSRYB103K50
C 504	(B,17,12)	CCSRCH180J50
C 505	(B,13,12)	CCSRCH180J50
C 507	(A,25,9)	CKSRYB105K10
C 508	(A,29,11)	CKSRYB104K16
C 509	(A,29,16)	CKSRYB104K16
C 601	(B,68,40)	CKSRYB104K16
C 602	(A,68,42)	CEJQ100M16
C 603	(B,74,41)	CKSRYB104K16
C 604	(A,74,42)	CEJQ100M16
C 605	(A,48,38)	CKSYB475K10
C 606	(A,50,36)	CKSRYB104K16
C 607	(A,49,34)	CKSRYB122K50
C 608	(A,49,32)	CKSRYB331K50
C 609	(B,54,28)	CKSRYB104K16
C 610	(B,55,21)	CKSRYB104K16
C 611	(A,45,34)	CKSRYB103K50
C 612	(B,66,21)	CKSRYB104K16
C 614	(B,71,21)	CKSRYB104K16
C 615	(B,69,25)	CKSRYB104K16
C 616	(B,71,31)	CKSRYB104K16
C 617	(B,71,35)	CKSRYB104K16
C 618	(B,66,36)	CKSRYB104K16
C 619	(A,57,41)	CCSSCH5R0C50
C 620	(A,60,41)	CCSSCH150J50
C 621	(B,61,33)	CKSRYB104K16
C 624	(A,84,10)	CKSRYB104K16
C 625	(B,87,6)	CKSRYB104K16
C 626	(A,90,6)	CEJQ100M16
C 627	(B,102,29)	CKSRYB104K16
C 628	(B,102,33)	CKSRYB104K16
C 629	(B,98,16)	CKSRYB104K16
C 630	(B,100,16)	CKSRYB104K16
C 631	(B,105,16)	CKSRYB104K16
C 632	(B,109,16)	CKSRYB104K16
C 633	(B,119,16)	CKSRYB104K16
C 634	(B,102,19)	CKSRYB104K16
C 635	(B,107,19)	CKSRYB104K16
C 801	(A,112,79)	CEAT102M16
C 802	(B,112,75)	CKSRYB104K16
C 803	(B,91,78)	CKSRYB103K50
C 811	(B,99,56)	CKSRYB104K16
C 812	(A,99,54)	CEAT470M10
C 813	(B,106,60)	CKSRYB104K16
C 814	(A,106,58)	CEJQ100M16
C 821	(B,111,52)	CKSRYB103K50
C 822	(A,108,52)	CEAT470M10
C 823	(A,113,53)	CKSRYB103K50
C 824	(A,115,60)	CEAT102M16
C 831	(A,48,49)	CKSRYB102K50
C 833	(A,44,45)	CEJQ100M16
C 834	(A,43,49)	CKSRYB104K16
C 841	(A,112,45)	CKSYB475K10
C 842	(A,116,47)	CKSRYB104K16
C 843	(A,122,44)	CKSYB475K10
C 844	(A,120,45)	CKSRYB104K16
C 851	(B,129,40)	CKSRYB103K50
C 852	(A,127,40)	CEAT101M16
C 853	(B,136,41)	CKSYB475K10
C 854	(A,135,43)	CKSRYB104K16
C 901	(A,131,47)	CEHAZL101M25
C 902	(A,129,58)	CKSRYB334K10
C 903	(A,124,62)	CKSRYB104K16
C 904	(A,124,65) 4.7 µF	CCG1111
C 905	(A,122,50)	CKSRYB472K50
C 906	(A,121,72)	CEAT471M16
C 907	(A,124,49)	CKSRYB473K50
C 908	(B,54,35)	CKSQYB106K6R3
C 952	(B,132,8)	CCSRCH102J50
C 953	(B,121,23)	CCSRCH471J50

6. ADJUSTMENT
6.1 TEST MODE

● Implemented functions

	Model with 1-6 keys	Model without 1-6 keys	
	Main unit	Main unit (only the model 07)	Remote control
TEST1 command	Right key	Right key	Right key
TEST2 command	Left key	Left key	Left key
TEST3 command	Key 1	LIST key	Key 1
TEST4 command	Key 2	DISP key	Key 2
TEST0 command	BAND/ESC key	BAND/ESC key	BAND/ESC key

- Indication of system microcomputer Ver
- Indication of TCC firmware Ver
- To enter the TCC firmware UpDate mode:
  →Set this mode and insert a USB device having the UpDate program to start rewriting the device.
  * If you carry out the TEST 3 command with the USB device inserted, a correct result is not displayed.
- Confirmation on connection mode (mass storage class connection)
  →Set this mode and insert a USB device. Then, the connection mode is displayed.
  * Do not insert a USB device having the UpDate program.
  * If you carry out the TEST 4 command with the USB device inserted, a correct result is not displayed. Be sure to insert a USB device when "DeviceIn" is being displayed.


Normal connection
Activate the test mode
* Refer to the service manual of connected head unit regarding how to activate the test mode.
In the test mode
Enter the TEST1 command
Enter the TEST2 command
Enter the TEST3 command
Enter the TEST4 command
Indication of system microcomputer Ver
Indication of TCC firmware Ver
TCC firmware VerUp is getting ready.
Indication of connection mode is getting ready.
Enter the TEST0 command
Enter the TEST0 command
Insert a USB device for updating
Insert a USB device for confirmation
TCC firmware VerUp is started.
Now connecting
Passage of time : For about several tens of seconds
Passage of time : For about several tens of seconds
TCC firmware VerUp is completed.
Indication of connection mode
Enter the TEST0 command
Reset start

● Indications

Indication of system microcomputer Ver
Indication of TCC firmware Ver

V e r * . * *
V e r * . * *

TCC firmware VerUp is getting ready.
TCC firmware VerUp is started.
TCC firmware VerUp is completed.

MIN SEC SEC	
R E A D Y 0 0 0	Displays 0:00 to 5:00 (in increments of minutes and seconds)
U P D T 0 0 0	Displays 0:00 to 5:00 (in increments of minutes and seconds)
C O M P L E T E	* The time increment stops when it reaches 5:00.

Confirmation on connection mode is getting ready.
Now connecting
Indication of connection mode

D e v i c e I n	
C o n n e c t	
M S C	When a device supporting mass storage class is connected

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● **Removing the Case (Fig.1)**

1 Remove the four screws and then remove the Case.

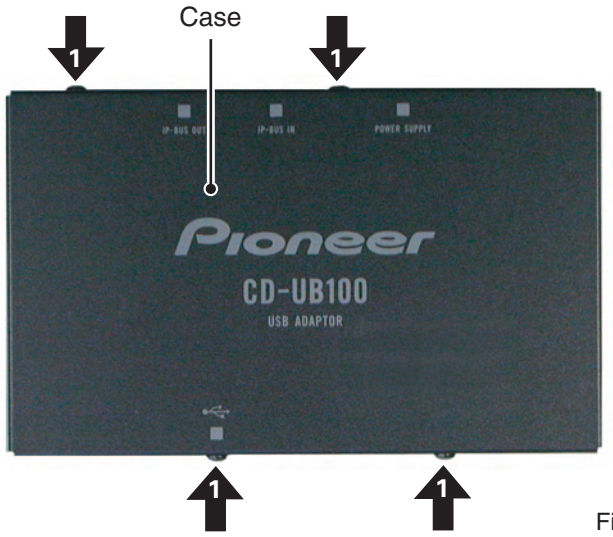


Fig.1

● **Removing the Mother Unit (Fig.2)**

1 Straighten the tabs at three locations indicated.

Remove the Mother Unit.

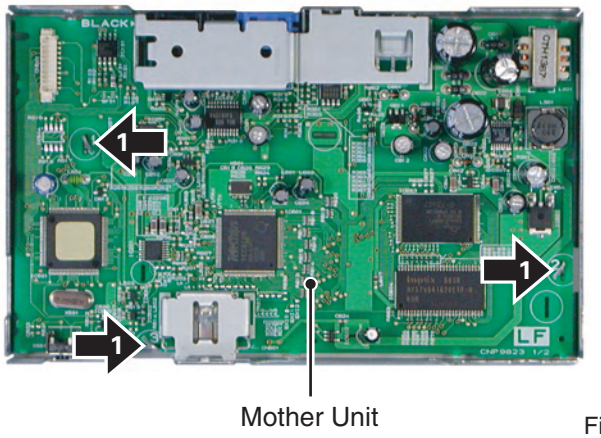
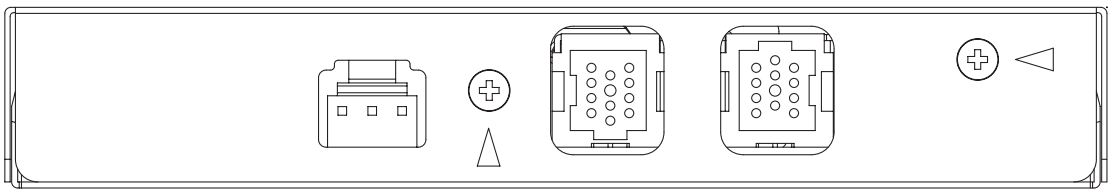
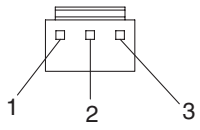
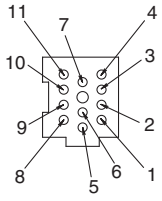


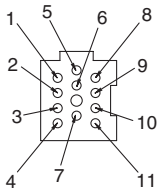
Fig.2

7.1.2 CONNECTOR FUNCTION DESCRIPTION









POWER SUPPLY

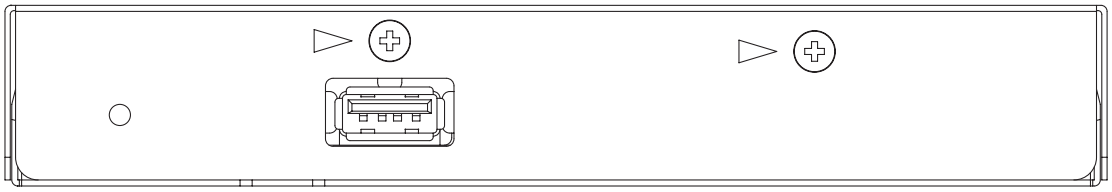
1	GND
2	NC
3	B. UP

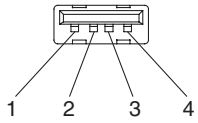
IP-BUS IN(BLUE)

1	BUS +
2	BUSG1
3	BUSG1
4	NC
5	BUS -
6	BUSG1
7	BUSL1
8	ASENB
9	BUSR1
10	BUSR2
11	BUSL2

IP-BUS OUT(BLACK)

1	BUS +
2	BUSG5
3	BUSG5
4	NC
5	BUS -
6	BUSG5
7	BUSL3
8	ASENB
9	BUSR3
10	BUSAG1
11	BUSAG1





USB

1	USB5V
2	D-
3	D+
4	GND

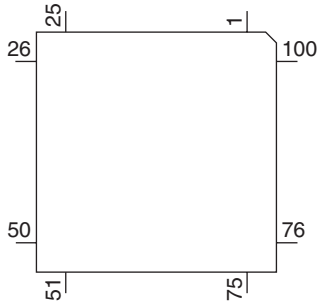
7.2 IC

● **Pin Functions(PEG297A)**

Pin No.	Pin Name	I/O	Function and Operation
1-5	NC		Not used
6	BYTE		External data bus width change input
7	CNVSS		Processor mode change input
8,9	NC		Not used
10	RESET		Reset input
11	XOUT		Clock output
12	VSS		Power supply input
13	XIN		Clock input
14	VCC		Power supply input
15	$\overline{\text{NMI}}$	I	NMI input
16-18	NC		Not used
19	RX2	I	IPBUS : Input 2
20,21	NC		Not used
22	DDSYNC	O	DD converter synchronous clock output
23	NC		Not used
24	$\overline{\text{XRST}}$	O	TCC860 reset output
25	WUP	O	For TCC860WakeUp(uncontrolled)
26	NC		Not used
27	RX		IPBUS : Input
28	TX		IPBUS : Output
29	TXD		For flash rewriting
30	RXD/TSI		For flash rewriting(combined with communication terminal for chip check)
31	SCLK/TSLK		For flash rewriting(combined with communication terminal for chip check)
32	BUSY	O	For flash rewriting
33	USBTX		For TCC860 communication
34	USBRX		For TCC860 communication
35-37	NC		Not used
38	USBPW	O	DD converter power supply control output
39	EPM	I	For flash rewriting
40,41	NC		Not used
42	MUTE	O	MUTE output
43	SEL	O	Selector output
44	CE	I	For flash rewriting
45,46	NC		Not used
47	USBCTL	O	USB bus power control output
48	$\overline{\text{FLG}}$	I	Overcurrent detection output
49	SYSPW	O	System power control output
50-53	NC		Not used
54	USBTEST_TRK	I	TrackUP operation terminal
55	USBTEST_NOW	O	TEST(SDRAM, Vendor ID check) completion determination terminal
56	USBTEST_NG	O	OK/NG output terminal
57,58	NC		Not used
59	USBTEST_IN	I	TESTIN terminal for USB
60	VDD		Power supply input
61	NC		Not used
62	VSS		Power supply input
63-66	NC		Not used
67	DALMON	O	For consumption current reduction output
68-70	NC		Not used
71	ROMCS	O	ROM correction chip select output
72	$\overline{\text{ASENSB}}$	I	ASENBO sense
73	$\overline{\text{BSENS}}$	I	Back up sense input
74	ROMCK	O	ROM correction : Clock output
75	ROMDATA	I/O	ROM correction : Data input/output
76-78	NC		Not used

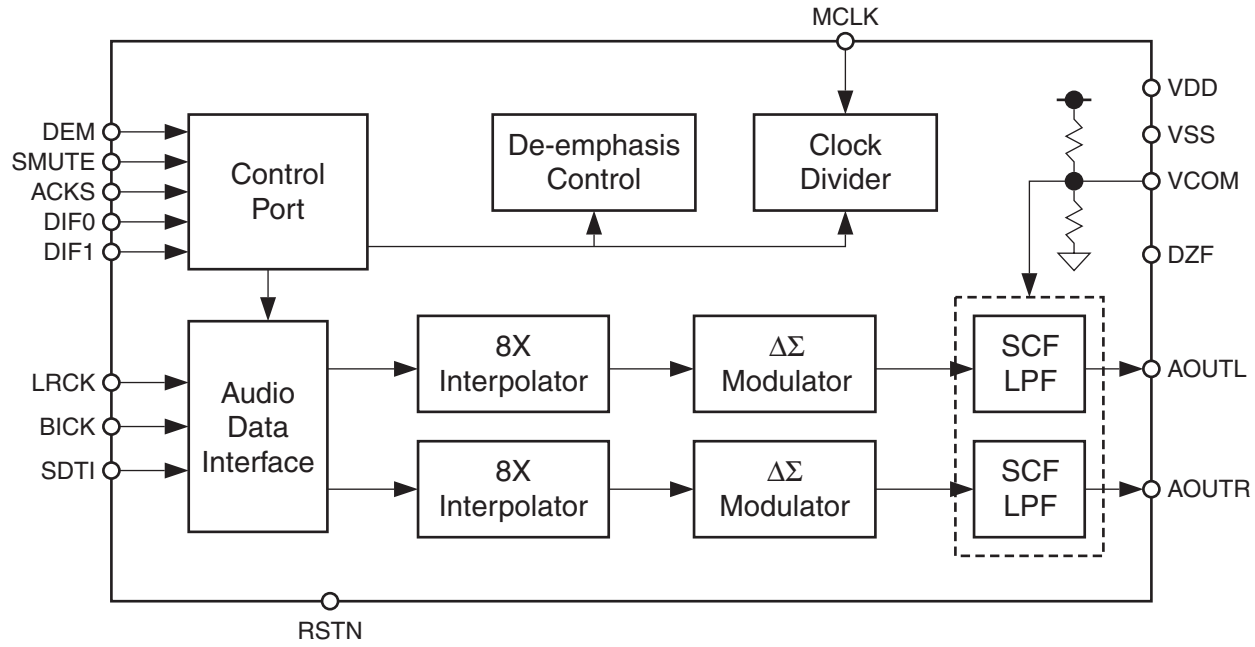
Pin No.	Pin Name	I/O	Function and Operation
79	IPPW	O	IPBUS : Driver power supply control output
80-85	NC		Not used
86	TESTIN	I	Test program input
87-93	NC		Not used
94	AVSS		A/D converter power supply input terminal
95	NC		Not used
96	VREF		AD translation reference voltage
97	AVCC		A/D converter power supply input terminal
98-100	NC		Not used

PEG297A

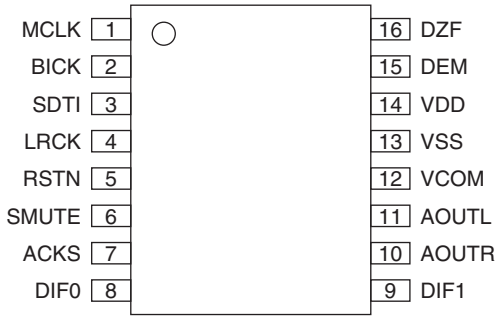


AK4388VT

● Block Diagram



● Pin Layout

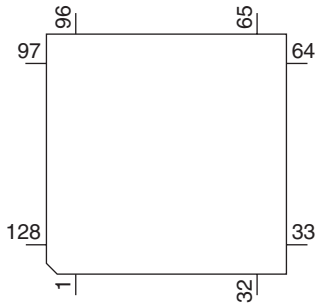


● Pin Functions(TCC8600-00X-EA-AG)

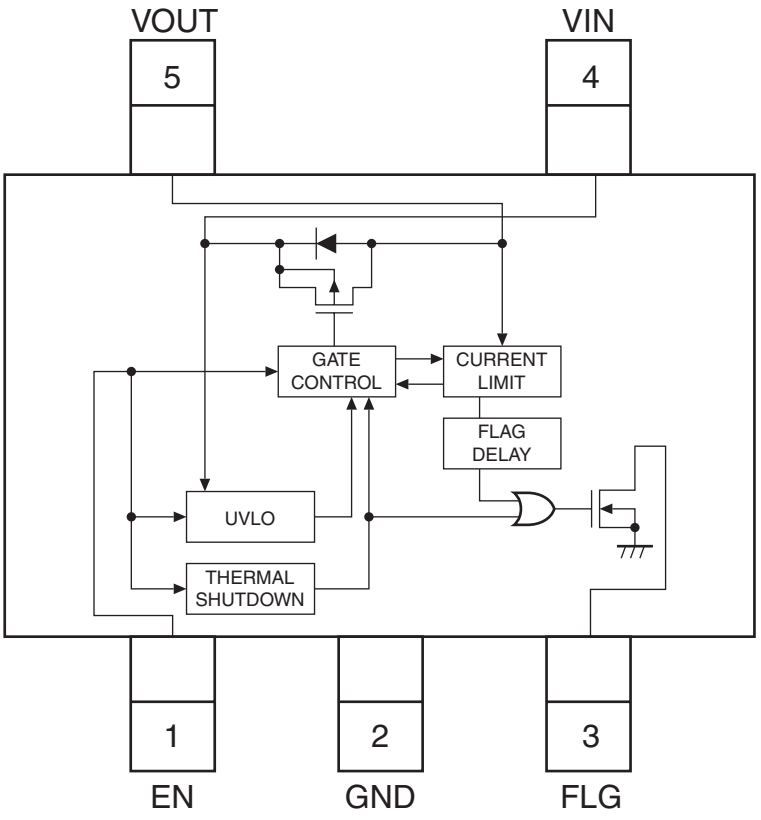
Pin No.	Pin Name	I/O	Function and Operation
1	VSS		Digital ground
2-6	XD[4]-[8]	I/O	External bus data bit [4]-[8]. Internal pull-up resistor enabled at reset.
7	VDDI		Digital power for internal core (1.8 V)
8	VSS		Digital ground
9	VDDIO		Digital power for I/O (3.3 V)
10-16	XD[9]-[15]	I/O	External bus data bit [9]-[15]. Internal pull-up resistor enabled at reset.
17-23	XA[0]-[6]	I/O	External bus address bit [0]-[6]
24	VDDI		Digital power for internal core (1.8 V)
25	VSS		Digital ground
26	VDDIO		Digital power for I/O (3.3 V)
27-39	XA[7]-[19]	I/O	External bus address bit [7]-[19]
40	VDDI		Digital power for internal core (1.8 V)
41,42	XA[20], [21]	I/O	External bus address bit [20], [21]
43	VDDIO		Digital power for I/O (3.3 V)
44	SD_CLK	I/O	SDRAM clock
45	VSS		Digital ground
46	SD_CKE	I/O	SDRAM clock enable signal. Active high.
47	SD_nCS	I/O	Chip select signal for SDRAM, active low
48	nWE	I/O	Static memory write enable signal. Active low.
49	nOE	I/O	Static memory output enable signal. Active low.
50	nCS[0]/ND_nOE[0]	I/O	External bus chip select [0] / NAND flash output enable [0]
51	nCS[1]/ND_nOE[1]	I/O	External bus chip select [1] / NAND flash output enable [1]
52	nCS[2]/ND_nOE[2]	I/O	External bus chip select [2] / NAND flash output enable [2]
53	nCS[3]/ND_nOE[3]	I/O	External bus chip select [3] / NAND flash output enable [3]
54	XOUT	O	12 MHz crystal oscillator output
55	XIN	I	12 MHz crystal oscillator input. Voltage must not exceed VDDI (1.95 V).
56	XTOUT	O	32.768 kHz crystal oscillator output
57	XTIN	I	32.768 kHz crystal oscillator input. Voltage must not exceed VDDI (1.95 V).
58	VDDI		Digital power for internal core (1.8 V)
59	VSS		Digital ground
60	GPIO_B[6]	I/O	GPIO_B[6]
61	ND_nWE	I/O	NAND flash WE. Active low
62	UART0TXD	I/O	UART0 TX data
63	UART0RXD	I/O	UART0 RX data
64	READY	I	Ready information from external device.
65	VDDIO		Digital power for I/O (3.3 V)
66	ADIN4		General purpose multi-channel ADC input 4
67	ADIN2		General purpose multi-channel ADC input 2
68	ADIN0		General purpose multi-channel ADC input 0
69	VDDADC		Analog power for ADC (3.3 V)
70	VSSADC		Analog ground for ADC
71	VSSPLL1		Analog ground for PLL
72	XFILT1		PLL1 filter output. 1 200 pF capacitor is required.
73	VDDPLL1		Analog & digital power for PLL1 (1.8 V)
74	VDDPLL		Analog & digital power for PLL (1.8 V)
75	XFILT		PLL0 filter output. 350 pF capacitor is required.
76	VSSPLL		Analog ground for PLL
77	nRESET	I	System Reset. Active low.
78	MODE1	I	Mode setting input 1. Pull-down for normal operation.
79	USBH0_DN	I/O	USB host port 0 D- signal
80	USBH0_DP	I/O	USB host port 0 D+ signal
81	VSS		Digital ground
82	USBH1_DN	I/O	USB host port 1 D- signal
83	USBH1_DP	I/O	USB host port 1 D+ signal
84	VDDUSB		Power for USB I/O (3.3 V)

Pin No.	Pin Name	I/O	Function and Operation
85	VDDIO		Digital power for I/O (3.3 V)
86	BCLK	I/O	I2S bit clock / Boot mode bit 0 (BM[0])
87	LRCK	I/O	I2S word clock / Boot mode bit 1 (BM[1])
88	MCLK	I/O	I2S System Clock
89	DAO	I/O	I2S digital audio data output / Boot mode bit 2 (BM[2])
90	DAI	I/O	I2S digital audio data input
91	VDDI		Digital power for internal core (1.8 V)
92	GPIO_D[15]	I/O	GPIO_D[15]
93	GPIO_D[16]	I/O	GPIO_D[16] / I2C SDA
94	GPIO_D[17]	I/O	GPIO_D[17] / I2C SCL
95,96	GPIO_D[18],[19]	I/O	GPIO_D[18], [19]. Internal pull-up resistor enabled at reset.
97	VSS		Digital ground
98,99	GPIO_D[20],[21]	I/O	GPIO_D[21], [20]. Internal pull-up resistor enabled at reset.
100	TDI	I/O	JTAG serial data input. Internal pull-up resistor is enabled at reset
101	TMS	I/O	JTAG test mode select. Internal pull-up resistor is enabled at reset
102	TCK	I/O	JTAG test clock. Internal pull-up resistor is enabled at reset
103	TDO	I/O	JTAG serial data output. Internal pull-up resistor is enabled at reset
104	nTRST	I/O	JTAG reset signal. Active low. Internal pull-up resistor is enabled at reset
105	GPIO_A[0]	I/O	GPIO_A[0] / GPSB/GSIO1 data output
106	GPIO_A[1	I/O	GPIO_A[1] / GPSB/GSIO1 clock
107	GPIO_A[2]	I/O	GPIO_A[2] / GPSB/GSIO1 FRM
108	GPIO_A[3]	I/O	GPIO_A[3] / GPSB/GSIO1 data in
109	GPIO_A[4]	I/O	GPIO_A[4] / GPSB/GSIO1 data output
110	VDDI		Digital power for internal core (1.8 V)
111	GPIO_A[5]	I/O	GPIO_A[5] / GPSB/GSIO1 clock
112	GPIO_A[6]	I/O	GPIO_A[6] / GPSB/GSIO1 FRM
113	GPIO_A[7]	I/O	GPIO_A[7] / GPSB/GSIO1 data in
114	GPIO_A[8]	I/O	GPIO_A[8] / I2C data line / GPSB/GSIO3 data output
115	GPIO_A[9]	I/O	GPIO_A[9] / I2C clock./ Bus width (BW) / GPSB/GSIO3 clock
116	GPIO_A[10]	I/O	GPIO_A[10] / I2C data line / GPSB/GSIO3 FRM
117	GPIO_A[11]	I/O	GPIO_A[11] / I2C clock / GPSB/GSIO3 data in
118	VSS		Digital ground
119	VDDIO		Digital power for I/O (3.3 V)
120-123	EXINT[0]-[3]	I/O	External interrupt request [0]-[3]
124	VDDI		Digital power for internal core (1.8 V)
125-128	XD[0]-[3]	I/O	External bus data bit [0]-[3]. Internal pull-up resistor enabled at reset.

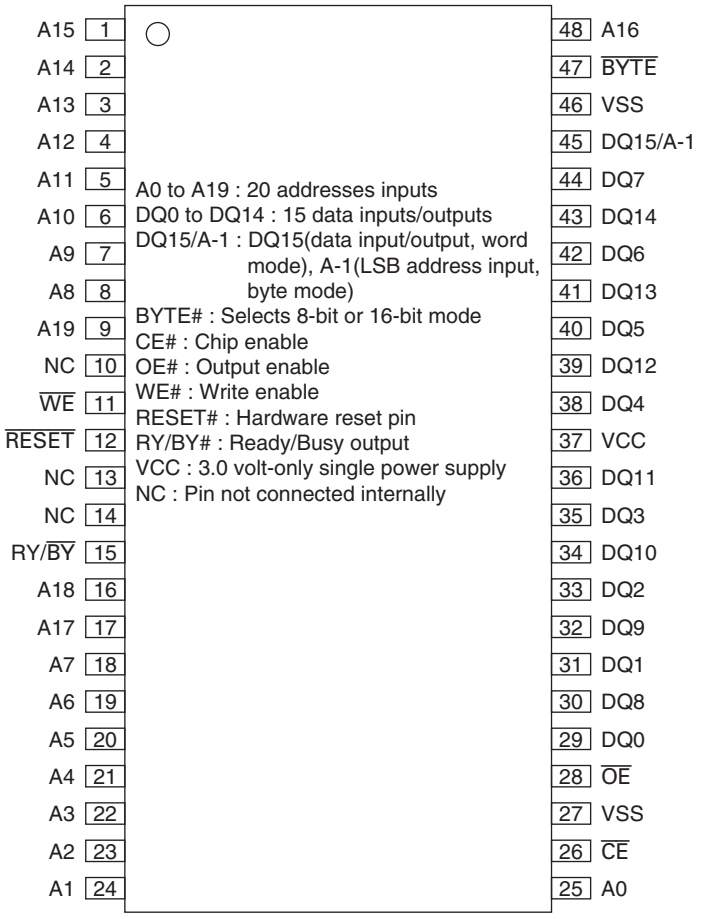
TCC8600-00X-EA-AG



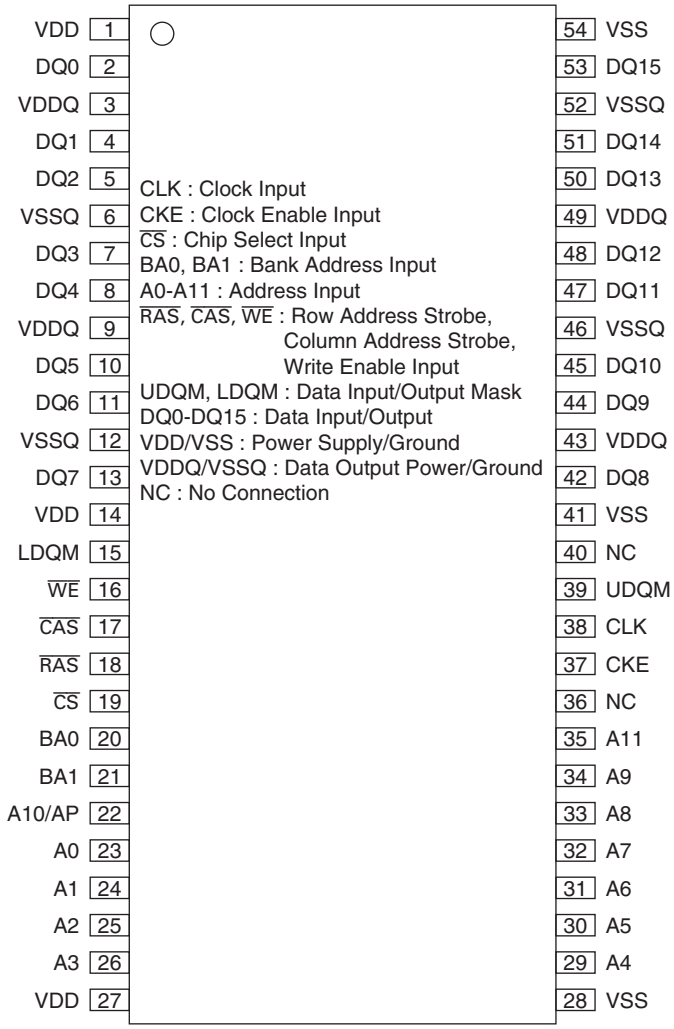
R5523N001B



PEH083A

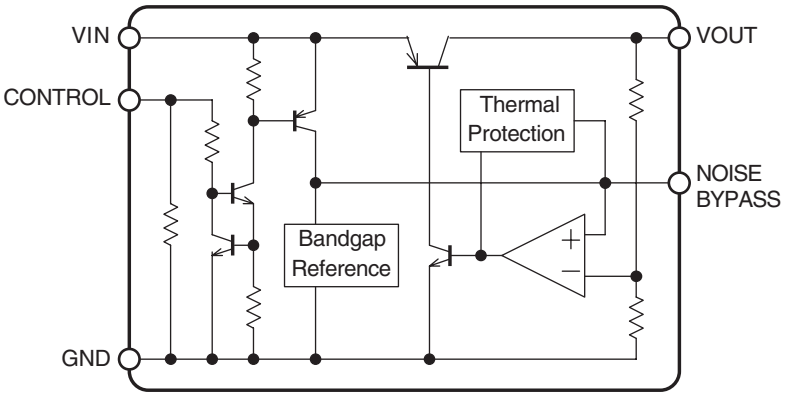


HY57V641620ETP-H

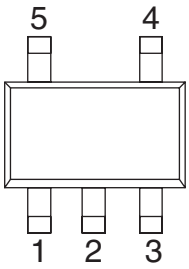


NJM2872BF05, NJM2872BF18

● Block Diagram



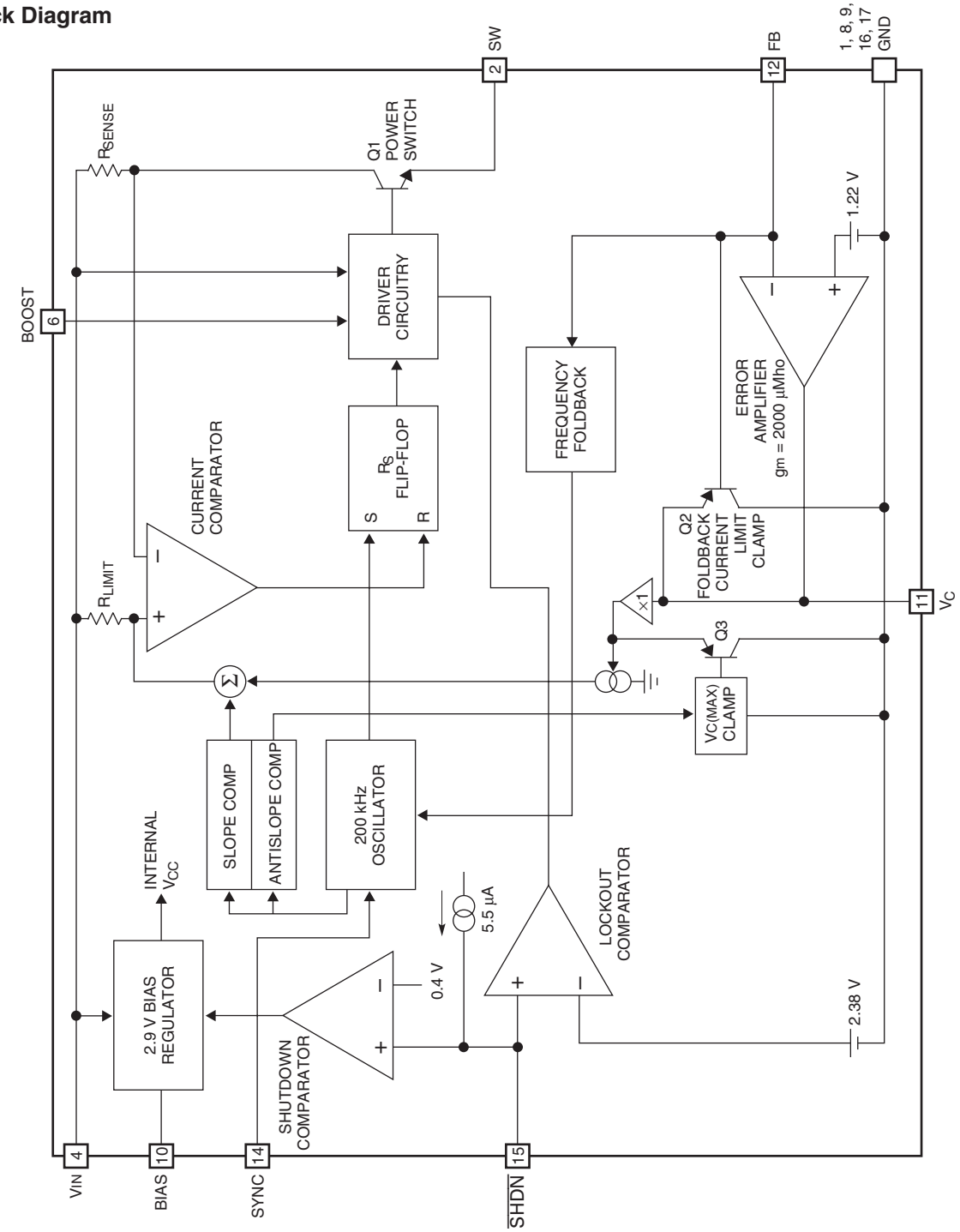
● Pin Layout



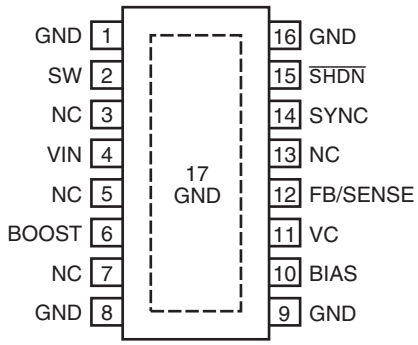
1. VIN
2. GND
3. CONTROL
4. NOISE BYPASS
5. VOUT

LT1766EFE-5

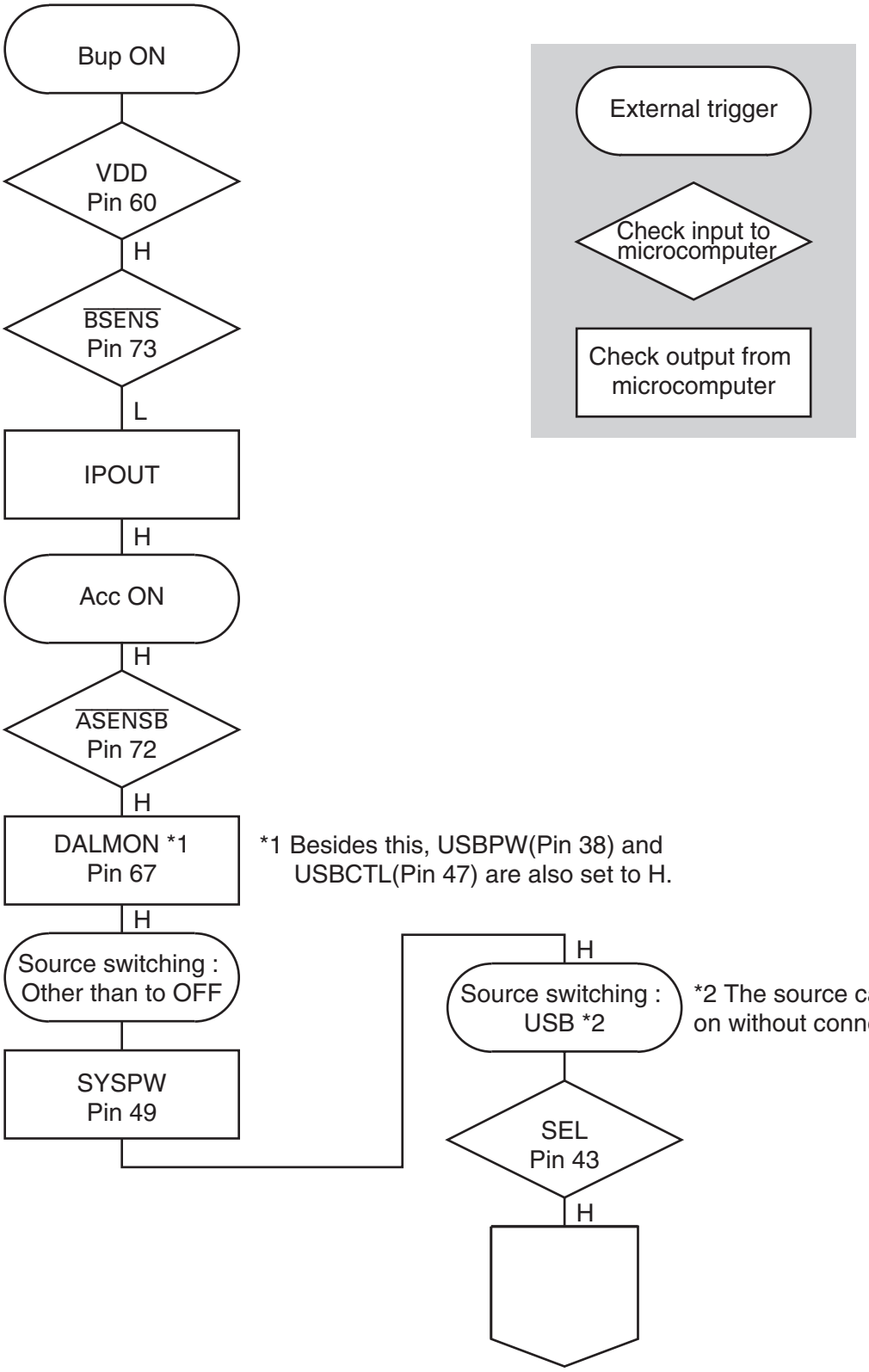
● Block Diagram



● Pin Layout



7.3 OPERATIONAL FLOW CHART



8. OPERATIONS

● **Connection Diagram**